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INDIA RUBBER WORLD

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Raincoats Again

S. G. Byam[1]

Chicago Rubber Clothing Co.

From a 1917 Style Book of Men's and Women's Raincoats

ONE curse of the raincoat industry—at least from the rubberizer's viewpoint—is an over-capacity of production; but this industry is not hampered by the declining use of raincoats and raincoat materials. Even during 1931 the volume of raincoat material made and sold was greater than in 1926, which is rated as a more or less normal year. Not so long ago, in fact early in the last decade, an industry production of from 6 to 8,000,000 yards of raincoat material existed; while now the use of such fabrics will run to over 20,000,000 yards. Manufacturers of rubberized fabrics make for all purposes in the neighborhood of 60,000,000 yards annually, but they could with no increase of plant equipment readily produce several times this amount. This means that if the demand existed, 50 or 100,000,000 yards of raincoat material could be produced easily by the 20-odd rubberizing manufacturers without interfering with the production of the various other types of rubberized fabrics. The problem, therefore, is one of increasing the market for raincoats so that more of the existing capacity may be utilized. Theoretically, this is quite possible, even without considering the export market which has in the past taken a substantial quantity of material, for the saturation point for raincoats is by no means reached. If half the people in this country used raincoats and bought a new one every 2 or 3 years, there would be a potential market for approximately 90,000,000 yards of fabrics. However the present-day raincoat averages a service life of more than 2 or 3 years, and unfortunately 60,000,000 people do not wear raincoats; but these figures indicate that there is room for improvement and suggest a road the manufacturer may take to increase his market. This condition is recognized by the raincoat proofers, and efforts are being made, though possibly not on so concerted a basis as possible, to this end. At present and during recent years the production of made-

[1] Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

up rubber raincoats does not exceed 7 or 8,000,000 garments a year. The figures indicate that with an average service life of 3 years, less than 25,000,000 people in this country are equipped with this utilitarian garment.

Perhaps it is because the public considers the raincoat as merely utilitarian and devoid of style appeal that its use is not more general. From this point of view alone the raincoat meets serious competition in the topcoat and automobile and as a result is placed in the class with the umbrella. For heavy duty utility, as in the case of the sportsman, postman, policeman, fireman, etc., the raincoat meets the requirements of the public and receives its full due. Relatively little can be done to widen this market, but much must be done with the public to induce it to wear raincoats generally in inclement weather if the real potential market is to be approached. It is not, we believe, that the modern raincoat lacks style and color appeal or that it is in any way an inferior product, but rather that the average person is not aware that the raincoat does have style. When a real awareness of this sort is aroused, the raincoat will become generally popular and a wider use will follow. At present it does not seem to be considered particularly stylish to wear this type of garment; yet there is much economy in its low cost and the protection it provides.

The raincoat should stand on its own feet and be sold on its merits as such, rather than as so often happens, as a substitute for a topcoat or a leather jacket. Sometimes one wonders if it is not considered only as a substitute for some better product by the public. In these times the real article in any industry is produced and sold so economically that there is little room for substitutes.

The raincoat materials in use today form an unusually interesting array of types, particularly as they include practically every sort of material that has been used during the past 50 years, plus a few that represent fundamentally new developments. The double texture trench cloth of today has its counterpart in the old Macintosh fabric that was made in England prior to the discovery and use of vulcanization; while the popular glazed surface leatherette is a revival of a somewhat similar material which had some vogue 10 years ago and which was a varnished edition more or less of the then popular, so-called gas mask fabric. Modern colors, many of which are dispersed in latex and provide great uniformity as well as permanence to cure and sunlight, accelerators, and antioxidants have, of course, made the present material far more attractive. The light weight, high color, "electric" finish, bombay cloth material still exists in most lines and has been periodically in evidence during the past 30 years. This material, though sulphur chloride cured, is very attractive and practical and makes an excellent low-priced garment. Its lightness of weight and attractive frosted colored finish appeals to all classes and ages. Not long ago and several years after the extensive popularity (1925 to 1926) in this country, Chanel introduced it in France with much success. Her attempt to popularize it again in this country failed only because it was not yet old enough to appear new to the American public. Embossed, printed, and transfer design effects are prevalent and are all revivals of past practices and vogues and are of considerable attraction.

Attractive New Fabrics

Of the newer types of raincoat fabrics, one of the most interesting is that called "elephant hide" or ripple cloth in which a surface corrugation or unevenness is produced by applying a film of rubber over the napped side of a fabric. Regardless of whether this effect originated by accident or intent, it was a noteworthy accomplishment and has been successfully exploited as a raincoat material. The natural disadvantage of a tendency toward poor anchorage of film to fabric which exists in this type of material has been overcome by the use of a sufficiently tough rubber film which permits the material to give at least adequate service for garment use. A similar effect is obtained with double texture material whereby a plain fabric is combined to a napped lining fabric. So far as we know, this ripple effect is new within the period of its recent use and is not a modified revival of some old idea.

Other new types are the latex treated fabrics, made durable and long-lived with dispersed ultra-accelerators and antioxidants. The disagreeable factors of poor odor, harsh surface feel, and not too good aging of the latex products are fast being eliminated, and they bid fair to become substantial factors in the future if present signs may be relied upon. There is among the leather-like materials an excellent simulation in appearance, feel, and wearing quality of horsehide garment leather. The development of this material is a real contribution to the users of garment fabrics and has been long desired. Its likeness to leather is essentially due to structural characteristics and is not merely a matter of surface embossing, though the embossing is peculiarly suitable.

Raincoat fabrics may be varied as to weight, thickness, color, surface design, surface finish, and texture, and any line offered by garment manufacturers today shows a wide range of these factors. Bright colors have been popular for some years: reds, blues, greens, and browns predominating, as raincoats are worn more generally by women than men. Men's colors run usually to conservative browns, olives, and black.

Rubber Dispersed Colors

A factor of considerable importance in the modern production of raincoats is the development of rubber dispersed colors. These are not merely master batches of color whereby dry color pigments are milled with rubber, but are intimate color mixtures produced by precipitating color and rubber directly from latex. The color paste in suitable colloidal form is added to the latex before coagulation, thus providing a degree of dispersion of the color in the rubber to an extent not obtained by milling. That colors made in this manner provide a measure of uniformity unapproached by any other method goes without saying. Rubber dispersed colors blend into the raincoat compound easily and uniformly and cannot localize in agglomerates as is so often the case when dry colors are used. The dispersed colors are available in an excellent range of shades, are extremely fast to light, and are not subject to crocking and bleeding. While this matter is primarily of interest to the proofer, it is something that the raincoat manufacturer can well afford to inquire about as the control and use of coloring ingredients is certainly of direct interest to him.

In these days of low prices, quality may not be endangered to meet price if the manufacturer expects to weather the storm. Rubber dispersed colors with their exceptional qualities of light fastness, brilliance, physical permanence, etc., together with their economy due to easy dispersion, uniformity, freedom from dusting, and contamination of and from other colors, make them of especial desirability.

Various Surface Finishes

Surface finishes range from the velvet dullness of the cornstarch type to the glazed brilliance of lacquer. The previously mentioned "electric" finish, obtained by the use of potato starch, is worthy of added emphasis, for it has been in active vogue so often in the past that one may with some degree of reasonable expectation predict its recurrence at a not-too-distant date. Other starches, such as sago, provide interesting effects, and the use of dyed or colored starch may yet provide a novel modification. Design as a surface effect is usually a matter of printing or embossing of both rubber

E. I. du Pont de Nemours & Co., Inc.
Alligator Grained Leatherette Coat—1927

Pacific Mills
Rubberized Cotton Print Cloth Coat—1929

E. I. du Pont de Nemours & Co., Inc.
Double Texture Elephant Hide Coat—1931

and fabric surfaces. Possibly the surface darkening due to the action of light on some of the best antioxidants constituting one of the extreme disadvantages to the use of these desirable chemicals in garment fabrics may yet be turned to account as a means for permanent decorating of rubberized fabrics. Embossed rayon fabrics, rubberized in such a way as to retain the surface impression, produce a desirable appearance. Printed designs on the rubber have had a mediocre success during the past 30 or 40 years, and every time they appear one feels that they may become extremely popular; yet they never seem to attain any very high level. Embossed designs in the rubber surface are periodically very much in demand as they appear so much more real than the printed effects and have in recent years been used to a considerable extent. Starting more or less in grains to simulate leather, embossing has gone through modernistic trends to floral, reptile, and fabric-like designs and is now back to leather. Two-toned effects obtained by souping grained material with a contrasting color enhances the design to a marked degree. Texture of the rubberized surface may be varied most readily by embossing, but may also be accomplished by calendering with engraved rolls, as in the case of the common moire effect on overshoes. With combined fabrics or rubber-lined material, texture is of course wholly a function of the fabric weave, and many new and attractive effects have been produced for this purpose by the textile manufacturers.

(*To be continued*)

Transparent Rubber[1]

SMALL novelties, nipples, etc., of transparent or semi-transparent rubber must be vulcanized at a relatively low temperature to secure a pale amber-translucent product; consequently ultra-accelerators are necessary. A certain amount of soluble zinc oxide is essential for practically all rapid accelerators. This may be added as stearate of zinc or in the form of very finely divided almost colloidal zinc oxide. Extremely fine zinc oxide has a very feeble covering power and during vulcanization appears to dissolve completely in the rubber resins. About 2% of zinc oxide or the equivalent of soluble zinc soaps is required to obtain complete activation of the accelerator. A fairly good activation is obtained with ½ to 1%. Less than ½% is not sufficient to have much value. The accelerator should be liquid, should dissolve completely in the rubber, and should not cause over-vulcanization.

A non-blooming transparent rubber comprises pale crepe 100, colloidal zinc oxide 0.5 to 10, sulphur 1, accelerator 0.75. This mixing cures in 80 minutes at 15 pounds of steam or in 12 minutes at 30 pounds. The cure will vary slightly according to the amount and fineness of the zinc present. It is also affected slightly by lead or cadmium in the zinc oxide, neither of which should be allowed.

Colored transparent rubber can be obtained by adding to the above mixing any color that is suitable for the purpose desired.

[1] *Caoutchouc & gutta-percha*, June 15, 1932, p. 16022.

Compounding Latex

Joseph Rossman, Ph.D.

THE following continues the information on United States patents relating to the compounding of latex from our October 1, 1932, issue.

114. Biddle, 1,762,153, June 10, 1930. The following is an example of an inaqueous colloid dispersed in a hydrophilic colloid: 10 parts by weight of starch, 1 part by weight of lime, ½ part by weight of sodium fluoride, 100 parts by weight of water, and 10 parts by weight of rosin (melted or dissolved). In this instance the lime and the sodium fluoride are mixed with the starch and the water subsequently added, or the lime and the sodium fluoride are first put in solution and the fresh solution then added to the starch. Enough cold water is first added to the mixture to form a paste, the remaining water being added immediately thereafter or during the dispersing of the melted or dissolved rosin in the starch solution. The treatment of the starch by the lime and sodium fluoride solution may be accelerated by heat if desired.

Oils, waxes, tars, etc., filling materials such as zinc oxide, whiting, clays, lamp black, comminuted fibrous materials such as cork, sawdust, asbestos, may be added when desired.

It is sometimes desirable that insolubilizing agents be added to the composition to make the hydrophilic colloids when used, insoluble in water after the water has been removed from the composition. The insolubilizing compounds may selectively insolubilize the hydrophilic colloids only and may be formaldehyde, hexamethylene tetramine, potassium or sodium bichromate, tannin, zinc chloride, etc., or they may be strong acid bearing substances which not only insolubilize the hydrophilic colloid but have a coagulating effect upon the aqueously dispersed inaqueous colloidal substances. For example, zinc chloride, ½ part by weight, may be added to the composition.

115. McGavack, 1,762,729, June 10, 1930. To illustrate one manner of carrying out the invention, 5 ccs. of a solution of sodium silicate, specific gravity 1.2, are added to 100 ccs. of 6% boric acid. In a few minutes the mixture will set to a firm reversible gel which may be used very satisfactorily in spreading, coating, and other manufacturing operations. Instead of the above proportions, 20 ccs. of sodium silicate solution and 19 ccs. of acetic acid may be employed, and 19 ccs. of acetic acid may be stirred in afterwards. Again gel formation will occur in a few minutes.

To illustrate the invention as applied to more concentrated latices, the following is given. To 100 ccs. of 50% latex are added 5 ccs. of a 25% solution of sodium silicate. Thereafter 1 to 5 ccs. of a 20% solution of ammonium oleate are thoroughly stirred into the latex. A thick reversible latex gel results in about 15 minutes.

The hydrosol of silicic acid may be preformed and added to the latex. For example, to 60 ccs. of a solution of sodium silicate, specific gravity 1.2, are added 25 ccs. of 7% acetic acid. This mixture forms a clear hydrosol of silicic acid on the alkaline side of neutrality. To this hydrosol are now added 130 ccs. of 36% ammonia preserved latex, thoroughly stirred in and allowed to stand. A reversible gel forms in about 5 minutes.

Similar results may be obtained by using the acid hydrosol. To 60 ccs. of 7% acetic acid 32 ccs. of sodium silicate solution, specific gravity 1.2, are stirred in thoroughly. The clear liquid hydrosol resulting is then added to 100 ccs. of uncoagulated acid latex. Gelling occurs in about 5 minutes.

116. Biddle, 1,764,928, June 17, 1930. Two parts of bentonite clay, 2 parts zinc oxide, and 3 parts of sulphur are first mixed with the water to form a paste; 100 parts (35% rubber) latex are then added thereto, and the mass is thoroughly mixed. Following this step 50 parts granulated carborundum are added and mixed. The plastic composition so formed is then molded into wheels, stones, or other desired forms.

117. Hopkinson and Teague, 1,765,015, June 17, 1930. An emulsion of 6 parts of water, 4 parts of medium mineral oil, for example spindle oil, and 0.1-part of potassium oleate is formed and added to latex in the proportion of 0.1-part of the emulsion to 1 part of a solid content of the latex. The latex contains 1 to 2% ammonia. Four parts of straw by weight are treated with 1.1 parts of the combination of rubber and oil. The mass is mixed and, while still wet, is roughly formed to the required shape so that on pressing the desired density is obtained. The material is allowed to air dry or may be dried at an elevated temperature.

118. Dewey and Crocker, 1,765,134, June 17, 1930. A sealing compound consists of 70 parts by weight of latex added to a previously prepared mixture containing 12 parts of the water suspension of bentonite and 18 parts of the gum karaya solution. The dispersion of bentonite consists of 14% bentonite and 86% by water, of weight. A water solution or suspension of the gum karaya is prepared containing approximately 3% by weight. To this about 2% by weight of soda ash is added.

119. Teague, 1,765,748, June 24, 1930. Floor coverings are made as follows. Tar paper, used as the base material, is coated with a compound containing 100 parts dry rubber (as latex containing 60% total solids), 100 parts ground flint (140 mesh), 100 parts gilders whiting, 2 parts zinc oxide, 2 parts sulphur, 2 parts zinc dimethylaminodithiocarbamate, 5 parts red oxide, 10 parts mapico yellow, 5 parts casein, 25 parts ammonium hydroxide (28%), 0.5-part lampblack, 75 parts water (in addition to that in the latex), 15 parts litharge. In preparing this compound the ground flint, gilders whiting, zinc oxide, sulphur, zinc dimethylaminodithiocarbamate, red oxide, mapico yellow, lampblack, and litharge are mixed intimately; then the additional water is added. This paste next passes through a paste or paint mill to remove any lumps. The casein is dissolved in the ammonia and then added to the latex. The paste of the compounding ingredients is stirred into the latex-casein mix. This compound is spread over the base material, dried, and vulcanized.

120. Rose and Cude, 1,765,774, June 24, 1930. Insulating material is made by beating paper pulp in the presence of an alkali until it has assumed a gelatinous state, mixing the pulp with rubber latex and a normally hydrated

pulp, depositing the rubber on the pulp by slow coagulation, and forming an article from the pulp.

121. Wescott, 1,767,234, June 24, 1930. Tread stock results from mixing and surrounding comminuted, partially cured rubber fiber particles with alkaline fluid rubber latex, and drying the mixture without coagulating the latex to form an interstitial gel which unites the rubber fiber particles.

122. Sutton, 1,770,092, July 8, 1930. Latex is thickened by the action of small quantities of zinc oxide, with a latex having an ammonia content of between 0.75% and 1% actual NH_4OH. Measure out 40 liters of latex into a suitable vessel and weigh out 150 grams of very finely divided colloidal zinc oxide. This is first mixed with water containing a few drops of ammonium hydrate and brought to a smooth paste. About 200 cc. of latex are then added, and the zinc oxide distributes or disperses evenly, thickening the mass slightly. Further quantities of latex are added slowly until no more thickening occurs. The body then has the consistency of a thick batter. The mixture is thoroughly stirred into the bulk of the latex, and the whole is heated in a water bath to about 95° C. (i.e., boiling water outside the vessel) for 2 hours, the mixture being stirred frequently during the thickening process. When the desired viscosity has been reached, the latex is removed from the bath, allowed to cool, strained through fine muslin, and is then ready for use.

123. Teague, 1,772,647, Aug. 12, 1930. Latex can be thickened and stabilized in the presence of suitable proportions of saponin. The following is given as an example: 100 parts rubber by weight (as 60% solids latex), 200 parts lithopone by weight, 1 part saponin by weight, 0.5-part ultramarine blue by weight, 1 part zinc oxide by weight, 3 parts sulphur by weight, 0.5-part zinc dimethyl-dithiocarbamate. The above compound may be cured in air in 2 hours at 212° F.

124. Biddle, 1,777,157, Sept. 30, 1930. An adhesive composition comprises rubber latex 100 parts, casein 20 to 300 parts, calcium hydroxide 5 to 300 parts, sodium hydroxide 2 to 50 parts, and water to dissolve.

125. Biddle, 1,777,158, Sept. 30, 1930. Veneer wood glue is made from 100 parts by weight of blood albumen, 15 parts by weight of paraformaldehyde, 150 parts by weight of water (not hot). The albumen is added slowly to the water until dissolved, and the paraformaldehyde is then added to the albumen solution. If the albumen solution should tend to coagulate rubber latex or other aqueous dispersions, such dispersions should first be combined with other water-soluble colloids, besides the albumen. After the insolubilizing agent has acted upon the blood albumen, it may thicken, but will later become fluid on standing. The solution is then combined with 100 parts by weight of latex.

126. Biddle, 1,777,159, Sept. 30, 1930. An adhesive composition in aqueous dispersion comprises rubber latex, blood albumen, ammonia, and silicate of soda.

127. Biddle, 1,777,160, Sept. 30, 1930. An adhesive composition in aqueous dispersion comprises rubber latex, calcium hydroxide, and blood albumen. The latter first is added slowly to the water and stirred until dissolved; the lime is then added either dry or wet, and the albumen mixture is combined with the latex.

128. Biddle, 1,777,161, Sept. 30, 1930. An adhesive composition comprises rubber latex, casein, calcium hydroxide, trisodium phosphate, sodium fluoride, and water.

129. Biddle, 1,777,162, Sept. 30, 1930. An adhesive composition comprises rubber latex, casein, calcium hydroxide, sodium borate, and sodium carbonate.

130. Untiedt, 1,777,945, Oct. 7, 1930. A foam stabilizing substance is added to latex, and air is passed into the latter to foam it. Foam stabilizers which may be used are 1% of ordinary soap, 0.5% saponin based on the weight of latex, gelatin, glue, etc. The so-prepared foam is then treated to fix or solidify the rubber in it. The foam can be spread out in sheets and left to dry; in which case sheets of porous rubber are obtained having minute pores evenly distributed throughout. This sheet rubber feels like chamois leather and is exceedingly porous. It can absorb a large amount of water and may be put to numerous uses: as a filter medium in storage batteries, surgical belts, etc.

131. Williams, 1,778,841, Oct. 21, 1930. Add 20% by weight of ammonium chloride to ammonia preserved latex, which is used for electrodepositing rubber.

132. Hopkinson, 1,784,523, Dec. 9, 1930. A composition for coating by spreading is made from 100 parts of dry rubber by weight (as concentrated latex containing, say, 50% rubber by weight), 200 parts of whiting by weight, 10 parts of zinc oxide by weight, 4 parts of sulphur by weight, 10 to 25 parts of spindle oil by weight, 5 parts of glue, 5 to 12 parts of 2% soap solution by weight. The spindle oil is emulsified in ½ its volume of a 2% soap solution with constant stirring. Thereafter the glue in the form of a 50% water solution is added. The glue stabilizes the oil emulsion, and the whiting, zinc oxide, and sulphur may now be added. The mixture is thoroughly incorporated by passing it through a paint or paste mill, from which it is then allowed to drop directly, as it issues, into the concentrated rubber latex which is stirred continuously during the mixing. The mass thickens on standing after a few hours, an advantage in the spreading operation. The compound as so prepared is ready to be spread. This operation consists in laying a thin layer of the mixture on a continuous web of cloth or other material by the usual spreading machine and drying it more or less thoroughly. After this action, if desired, a second layer may be applied in the same way. The cloth so coated is then dried.

A typical compound which may be spread, including vulcanizing ingredients adapted to accomplish vulcanization, is: 100 parts by weight of rubber (as rubber latex containing 50% solid content), 100 parts by weight of lithopone, 10 parts by weight of zinc oxide, 4 parts by weight of sulphur, 0.5-part by weight of ultramarine blue, 3 parts by weight of aniline, 3 parts by weight of potassium butyl xanthogenate. The compound is spread and dried, and vulcanization is accomplished by allowing it to stand at approximately 70° F. for a week.

Another example follows: 100 parts rubber (as 60% solids latex), 100 parts lithopone, 75 parts barytes, 10 parts glue, 7 parts ammonium stearate (dry basis), 0.5-part ultramarine blue, 1 part zinc oxide, 3 parts sulphur, 0.5-part zinc dimethyl-dithiocarbamate. This compound may be vulcanized in air in 2 hours at 212° F. In this compound the ammonium stearate acts as a thickening and stabilizing agent.

A further example of a compound for coating by dipping with a latex thickened by concentrating follows: rubber (as 60% latex) 100 parts, sulphur 4 parts, zinc oxide 0.5-part, zinc dimethyl-dithiocarbamate, 0.5-part. This compound is suitable for rubberizing fibrous material by dipping, such as sheet fabric, or articles built up or otherwise formed of fibrous material, such as fabric gloves, bathing shoes, boots, overshoes, etc. One way of making the latter articles is by stretching a woven or knitted lining over a form and then dipping in the above-mentioned compound, or instead the lining may be made by building up cut-to-shape parts, joining them, and then dipping as before.

There is considerable use for a rubberized fabric glove in chemical plants for handling corrosive materials and in many other industries where a durable and waterproof glove is desired.

133. Mathey, 1,784,740, Dec. 9, 1930. The method of treating rubber latex for use as an adhesive consists in subjecting it to repeated concentration in the presence of an agent giving an alkaline reaction, adding a germicidal agent, heating the stock in the presence of preservatives and then cooling it to reduce it to a jelly-like mass, and straining the cold mass to liquefy it so that it will not jell again.

134. Ayres, Jr., 1,789,062, Jan. 13, 1931. The process comprises the emulsification of rubber latex, linseed oil, and sodium resin soap, acidulation of the mixture, and separation therefrom of mixed rubber, oil, and resinous substances. One of the examples given follows. Dissolve 200 grams of sodium resin soap (60% dry matter) in 500 cc. of water; thoroughly stir in 10 cc. latex (30% rubber with trace of ammonia); add 500 cc. neutral linseed oil and thoroughly emulsify; acidulate with hydrochloric acid to neutralize alkali and soap; boil with formation of viscous layer of mixed linseed oil, rosin, and rubber. The mixture is dried by heat, subsidence, or filtration with moisture absorbing substance. The product is a perfectly clear viscous solution adapted for use in manufacturing varnishes and enamels.

135. Twiss and Murphy, 1,793,265, Feb. 17, 1931. A composition which can be concentrated to about 3% water content at or below 40° C. with gentle stirring, to yield a reversible paste which becomes solid on being extruded follows: rubber (as latex) 100.0, oleic acid 1.0, caustic potash 0.2, glycerol 5.0.

136. Whittelsey, 1,793,983, Feb. 24, 1931. A rubber cement comprises rubber latex, a rubber solvent, and a small amount of an emulsifying agent as sodium oleate.

137. Ellis, 1,795,364, Mar. 10, 1931. A dispersion of sulphur and bentonite is added to latex. The mixture is dried by spraying in a heated chamber.

138. Twiss and Murphy, 1,797,250, Mar. 24, 1931. Transparent vulcanized rubber is made by concentrating a mixture of rubber latex, sulphur, and an ultra-accelerator of the zinc salt type, the mixture being devoid of zinc oxide. Vulcanize the mixture at a temperature not exceeding 100° C.

The following example illustrates how the process is carried out. A mixing of 96.75 parts of rubber in latex from 2.50 parts of sulphur, 0.75-part of zinc diethyldithiocarbamate, 0.3-part of oleic acid, 0.2-part of casein, and 0.7 of potassium hydroxide is concentrated until it contains 75% total solids. On depositing a portion of the creamy product in layers on a shaped foundation and then drying and vulcanizing it in boiling water for 35 minutes, a highly transparent, very elastic, and strong product results. If the deposition is effected by dipping, the operation may be repeated as many times as required.

Examples of further mixings follow. (1.) A mixing was made up to contain by per cent: rubber (as latex) 92.00, sulphur 2.50, zinc diethyldithiocarbamate 0.5, paraffin oil 5.0, casein 0.20, oleic acid 0.30, caustic potash 0.4. In this case the latex employed was concentrated by centrifuging before compounding. No further concentration was given. Total solids were 50%. (2.) Another mixture contained by per cent: rubber (as latex) 86.75, sulphur 2.0, zinc piperidinecarbothionolate 0.75, transformer oil 10.0, oleic acid 0.2, caustic potash 0.3. The mixture was concentrated until it contained 70 to 75% of total solids. (3.) A mixture was made to contain by per cent: rubber (as latex) 92.0, sulphur 2.0, zinc diethyldithiocarbamate 1.0, paraffin oil 5.0, oleic acid 0.1, casein 0.1, caustic potash 0.1. The compounding ingredients were dispersed in a solution of the oleic acid and casein in alkali, then added to ordinary ammonia preserved latex without subsequent concentration.

139. Gibbons, 1,798,253, Mar. 31, 1931. Higher aliphatic acids such as stearic, palmitic, or oleic acids are compounded with latex by first being converted into the ammonium salt. Carbon black may also be added, and all the ingredients are thoroughly dispersed in water to form a thin paste. The batch may then be dried in any suitable manner, as by partially drying it in the mixing machine and then completing the drying in any desired form of drying apparatus. In drying, the ammonia is split off, leaving the stearic acid uniformly incorporated in the carbon black. The resulting product is one which does not fly or dust and which can be readily mixed with rubber on the mill; or if desired, the wet mixture of carbon black and ammonium stearate can be mixed with rubber on the mill or added to rubber latex or other water dispersion of rubber, and the ammonia removed as before.

140. Biddle, 1,801,621, Apr. 21, 1931. Latex is compounded by adding to it an alkaline earth hydroxide, a water absorbing colloidal substance, and a water-soluble chlorine substance. The whole is in a state of aqueous dispersion. An example follows: rubber latex 100 parts by weight, calcium hydroxide 5 parts by weight, water 5 parts by weight, sodium chloride 1 part by weight. The water is mixed with the calcium hydroxide and sodium chloride, which composition is then added to the rubber latex. This composition may be used as a simple adhesive for binding fibers, ground cork, sawdust, etc. Where vulcanization is desired, vulcanizing compounds may be added.

If the composition is to be utilized as a strong glue having water resisting properties when dry, the following example may be used as a guide, the proportions of which may be changed to suit conditions: casein 100 parts by weight, lime (calcium hydroxide) 20 parts by weight, sodium carbonate 5 parts by weight, sodium tungstate 3 parts by weight, tri-sodium phosphate 10 parts by weight, water (used to dissolve the above) 350 parts by weight, sodium chloride (10% solution) 30 parts by weight. Soak the water-soluble colloid in cold water; then add the solvents, if solvents or breaking down or expanding agents such as the lime, sodium carbonate and tungstate and phosphate are used. Although the salt or chloride of sodium may be added dry, it is preferable to add it in solution form and to the casein solution. The above composition is then mixed with 200 parts by weight of latex.

141. Teague, 1,802,127, Apr. 21, 1931. Rubber latex is compounded with 5 parts of sulphonated castor oil to 100 parts of rubber. The oil acts as a polar compound or wetting agent so that latex may be applied more readily to non-absorbent materials such as stone, concrete, rock, fibers, such as cotton, hemp, wool, hair, asbestos—in fact any mineral, animal, or vegetable fiber which contains in or on its fibers oils, waxes, or greases, or other substances capable of preventing or retarding aqueous dispersions of rubber from penetrating or saturating the material. Sulphonated cotton seed oil, sulphonated olive oil, sulphonated arachis oil, ortho toluidine, sodium sulphanilite, sodium salicylate, thiourea, ammonium (linolenate and isolinolenate) saponin, sodium dioxynaphthalene disulphonate, potassium oleate, sodium naphthalene sulphonate, or other related compounds having similar properties may be used. While the proportions of the polar compounds or wetting agents employed may be varied, 5 parts on 100 parts of rubber have been found generally to yield satisfactory results.

As a specific example of the application of the invention to jute rope cord or fabric, a compound such as 100 parts of rubber latex or an aqueous dispersion of rubber containing 15% solids, 2 parts sulphonated castor oil, and 50 parts gilders whiting may be employed. The cord or rope is passed through the compound and then dried and polished. A jute cord of about ¼-inch in diameter after impregnation showed an increase of about 20% in tensile strength. A similar cord showed approximately 18% improvement in tensile strength and approximately 76% improvement in resistance to wear.

(*Continued on page* 38)

Protective Rubber Footwear

In view of the drastic inroads made by foreign competition in the United States footwear industry, the present article is timely in showing the remarkable development of protective foot coverings from the crude rubber boot of the Amazon to the present serviceable and stylish American rubber.

In 1931 this great industry produced $48,000,000 worth of rubber footwear that afforded employment to 25,000 expert workers in the various shoe factories throughout the country. Now at the peak of its usefulness the United States footwear industry is menaced by impossible foreign competition.

Rubber Growers' Assn.

Patten of Olden Times **Old Rubber Boot** **Later Type of Rubber Boot**

STUDENTS of the rubber industry have found much of interest in the development of various branches, but not even in the spectacular line of tires have they found more curious progress made than in rubber footwear, particularly that line best defined as protective. The development even reaches back beyond the discovery of America and involves people who have left us little tradition and less history.

Spanish pioneers in Mexico and the West Indies tell of finding the aboriginese about 1500 A.D. indulging in a game played with a ball made of dark elastic resin derived chiefly from the latex of the Castilloa tree; and, investigating further, they found that the natives of the Amazon country particularly, had learned how to use the milk of the Hevea in making semi-cured crude, but useful, waterproof pouches and boots on clay forms, as well as proofing cloaks. Samples were sent to the Portuguese king, who was so pleased with the shoe covers that he ordered more boots of rubber and even sent a silken cloak to be rubberized. Indeed a considerable trade was developed in such forerunners of modern overshoes, galoshes, pouches, and ponchos by American shipping concerns very early in the Nineteenth Century.

While the Spaniards were making their discovery of rubber protective footwear, medieval dwellers in London had contrived other means for keeping their leather shoes dry and unsoiled; for even in fair weather many of the fine boulevards of today were little better than quagmires, the chief drainage of which was provided by a gutter in the center of each highway. In developing an overshoe the clog-like pattern was originated. It had a wooden base upheld on an iron ring or on high pegs and served at least to keep

Rubber Growers' Assn.

Later Type of Rubber Boot **Modern Galosh** **All Rubber Shoe**

the wearer's feet out of the wet and filth. Up to even 50 years ago country folk used them to a great extent.

Factory-Made Rubber Products

In time hygiene and highway engineering made pattens less necessary in the larger cities, but rain, snow, mud, and grease still left a problem for pedestrians, which came to be solved to a large extent by rubber footwear manufacturers. One of the great factors in the evolution of protective shoe coverings was the Goodyear discovery of vulcanization in 1839. Patten makers have since become makers of rubber footwear, and makers of the latter teamed up with the former and were admitted by the London Court of Aldermen to the freedom and the livery of the ancient guild of patten makers. Meanwhile in Great Britain and America the science of rubber manufacture has wrought a revolution in the production of all kinds of footwear.

Leather shoe makers looked askance at the intruders in their ages-old domain, and the makers of rubber protective coverings have had to combat for years a prejudice based on the alleged unhygienic efforts of wearing rubbers, galoshes, and the like. Luckily such unfair propaganda has been largely overcome even among the conservative British, who have in recent years even freely conceded the comfort, trimness, and serviceability of rubber footwear of the American types. Even when the rubber heel, now regarded as quite indispensable, first appeared, its wearers were much taunted for sneaking and even regarded with suspicion by policemen who later found such heels a great comfort.

The Revolving Heel

A heel which has had quite a vogue in Great Britain is circular in form, taking the place of the old leather top lift and being fastened in the center with a screw or a short wire nail. The wheel-heel was originated by a clerk in a Lancashire colliery, and its manufacture was begun when a company director, noticing how much more evenly such a heel wore than the leather ones of his own shoes, applied for a patent. It was remarked that as the heel automatically revolved on its axis it wore evenly on its whole surface and was economical as well as comfortable. Still used by many, too, is the quarter tip, covering but a segment of the heel where wear is greatest.

The manufacture of rubber heels now runs into hundreds of millions here and abroad with a wide range in quality, types, and sizes. Nor does this take account of the many kinds of soling produced and widely used to keep shoes dry and make them last longer than leather soled shoes and boots. Fashion has made note on an extensive scale of the rubber protective shoe covering, and Milady can in rubber overshoes, boots, and galoshes not only satisfy practically all her wishes in weights and designs as well as fastening contraptions, but can match an infinite variety of apparel.

Industrial Protective Types

Rubber protective footwear has many industrial uses, and, being waterproof and electrically non-conductive as well as easily washed and sterilized, practically nullifies hazards to life and injury in numerous occupations. Surgeons, for example, find in a simple slip-on boot a safeguard against slipping and infection in operating rooms; in match and explosive factories workers are saved and harm to materials averted through fire due to sparks which leather shoes might occasion; in acid using plants all-rubber boots and shoes of specially resistant stock have long proved their anti-corrosive merits; workers in laundries, breweries, mines, and cement plants find such footwear indispensable for health, comfort, and efficiency; while for many of the electrical industries rubber boots and shoes are built to withstand as high as 20,000 volts' pressure for 5 minutes without insulation breakdown.

An odd feature of the rubber footwear industry is that in one branch, that using high rubber content, manufacturing methods have departed but little from those originally in vogue. The dry heat process to which Goodyear owed his success in vulcanizing rubber with sulphur in the presence of white lead is still employed, especially for dark, varnished goods, litharge (lead monoxide) replacing white lead in the curing operation. Goods thus cured, and usually varnished, generally have luster and freedom from sulphur bloom, and vulcanization is carried on in well insulated chambers.

Generally speaking, production methods have been improving; still modern laboratory control does begin to compare with the remarkable progress made in turning out innumerable other rubber products.

Compounding Latex

(*Continued from page* 36)

Cotton rope, cord, hose, or belting may also be treated with rubber dispersions according to the present invention. Such associations of fibers may be impregnated in their entirety or in the case of rope may have the central cord impregnated before the surrounding cords are braided on the central cord, and a second impregnation given the outer braided portion. The same applies to belting. It is possible to obtain increases in resistance to flexing or abrasion amounting to as much as 300% by impregnating with a rubber dispersion containing a polar compound. Depending upon the thickness and tightness of the cord or belting and upon the nature and amount of the polar compound, increases in abrasion resistance ranging from 50 to 300% may be obtained without causing much more than a 10% reduction in the number of feet of the cord or belt per pound.

142. Gibbons, 1,802,761, Apr. 28, 1931. One illustration of the invention follows: 100 parts by weight of rubber in the form of ammonia preserved concentrated latex containing 60% of total solids (preserved with 1% of ammonia) are added to 22 parts by weight of uncompressed carbon black and 30 parts by weight of clay. The carbon black and the clay are placed into a closed mixer, and the concentrated latex is added while the mixer is in operation. During the mixing the greater part of the ammonia will be volatilized since the contents of the mixer become heated during the mixing operation. After the ammonia has almost entirely disappeared, 1.25 parts by weight of phosphoric acid are introduced into the mixer; the mixing is continued until the acid is distributed. The contents of the mixer are now removed; the water is dried off in any suitable manner in a drier or on a heated mixing mill. Even before the batch is entirely dry, it may be observed that, when placed on a mixing mill, it becomes coherent in 3 or 4 minutes and is completely plasticized, soft, and in general entirely like an ordinary pale crepe batch containing the same ingredients. By using a laboratory mixing mill at a roll temperature of about 190° F., for instance, the complete breakdown of the above stock will take place in 7 to 8 minutes, and the batch may be calendered directly after the customary warming up, to give a smooth continuous sheet free from lumps. Suitable vulcanizing ingredients may be introduced into the above mixture either before or after the batch has become dry and has been plasticized on the mixing mill.

143. Biddle, 1,802,867, Apr. 28, 1931. One example given is: rubber latex (approximately 35% rubber) 100 parts by weight, casein 20 parts by weight, lime 4 parts by weight, sodium sulphite 4 parts by weight, water 70 parts by weight. The casein, lime, and sodium sulphite are dissolved in the water, and the rubber latex is added thereto.

(*To be continued*)

Growing Imports of Rubber Toys and Balls

THE competition of imported rubber boots and tennis shoes from which American rubber manufacturers have been suffering has received considerable publicity, but another branch of the industry is troubled by equally severe competition from imports, although that branch has been less articulate as it is less important from the standpoint of persons employed and annual production. That is the rubber toy and ball manufacturing industry.

According to the Census Bureau reports for 1929, domestic manufacturers in these lines produced that year 2,819,400 dozen golf balls, value $7,460,200; rubber toy balloons, value $3,090,807; and other rubber toys, value $3,966,301, a grand total value of $14,517,308. The production of tennis balls was not separately reported and is not included above. Statistics for 1931 have not yet been published in this detail.

The interest in maintenance of employment makes these comparative statistics, showing the serious situation with which the rubber toy and rubber ball industry is confronted as a result of importations from countries with depreciated currencies and with lower living standards than our own, particularly pertinent at this time.

Decline in Local Production and Sales

Some idea of the trend of production in this industry is afforded by the Rubber Manufacturers Association statistics for "consumption of rubber" and "sales value of shipments" for "sporting goods, toys, and novelties," as reported to them by contributing manufacturers.

TABLE 1. SPORTING GOODS, TOYS, AND NOVELTIES

	Rubber Consumed Long Tons	Value of Shipments
1928	1,380	$7,582,000
1929	1,565	7,612,000
1930	2,222	9,441,000
1931	2,121	9,047,000
1931*	1,354	6,212,000
1932*	904	4,726,000

*First half.

For the first half of 1932 the amount of rubber used was only ⅔ of the amount used in the same period of 1931, while the value of sales was reduced 24% as compared with the first half of 1931—very likely manufacturers are reducing their stocks somewhat.

Decline in American Exports

Exports of golf and tennis balls from America are of little importance and are not separately reported. The exports of rubber balloons, toys, and other rubber balls have declined in recent years, perhaps more in value even than in quantity.

TABLE 2. UNITED STATES EXPORTS TO FOREIGN COUNTRIES

	Rubber Balloons		Rubber Toys and Balls
	Gross	Value	
1928	625,007	$751,137	$203,117
1929	815,181	880,235	194,520
1930	751,475	768,351	137,334
1931	657,234	594,016	108,846
1931*	440,301	396,476	102,367
1932*	187,522	156,719	34,896

*8 months includes exports to Alaska, Hawaii, and Porto Rico.

Comparison of 1932 exports with those of 1931 shows that the trade this year is running less than 40% of the value of 1931, while the quantity of balloon exports is only 43% of the 1931 figure for 8 months, indicating probably increased foreign competition as well as reflecting the general decline in trade.

Review of Imports, 1923-1931

Let us examine the course of imports of rubber toys and balls in recent years, and we find in the recent statistics an explanation of the downward trend of the domestic business in lines other than golf balls.

Golf Balls. Golf balls imported from the United Kingdom have always been popular in this country and probably accounted for over 10% of the domestic golf ball retail sales, on a quantity basis, in 1926. Since then they have declined annually until 1932 as will be shown later. In 1929 they accounted for approximately 7.2% of the domestic trade and in 1931 to only 4.2%, but the imports in 1932 are increasing again.

Tennis Balls. Tennis balls, imported in the past mainly from the United Kingdom, were of negligible importance in this market until 1931. It is possible that table tennis or ping-pong balls are included in this classification, in other words that the statistics cover tennis balls made of other materials than rubber. It will be shown later how greatly such imports have increased in 1932; in 1931 the imports increased sharply.

Other Balls. "Other balls for sport or physical exercise" were imported at an average annual number of 818,200 from 1923 to 1929 inclusive, but even in 1930 the imports under this heading began to increase. Rubber balls other than for golf or tennis would be classified under this heading and would be dutiable at 30% ad valorem under the 1930 Tariff Act. The classification also covers balls of other materials than rubber, but there is reason for believing that the most of the goods entered under this classification are rubber balls. The average annual value per ball ranged between 12¢ and 14¢ in 1926, 1927, 1928, and 1929, but declined to 9.48¢ in 1930 and to 4.98¢ in 1931. There have been further tremendous increases in the imports in 1932.

Rubber Toys. Rubber toy imports have not been of great importance in past years, but have steadily increased in value each year; and when the low prices reflected in all statistics of rubber products are considered, it is certain that the quantity increase in rubber toy imports has been very great in recent years. Goods classified under this description include balloons, inflatable rubber toys, and rubber dolls and figures and are dutiable at 70% ad valorem. Imports in 1932 are declining in value under this item.

Table 3 summarizes the annual imports of rubber and other balls and rubber toys from 1923 to 1931 inclusive; the statistics have been compiled from the officially reported "imports for consumption" in Commerce and Navigation of the United States.

TABLE 3. UNITED STATES IMPORTS FOR CONSUMPTION, 1923-1931

Year	Golf Balls Number	Golf Balls Value	Tennis Balls Number	Tennis Balls Value	Other Balls Number	Other Balls Value	Rubber Toys Value
1923	2,831,741	$1,173,560	114,808	$9,555	765,192	$181,019	$2,590
1924	2,843,712	1,060,102	34,215	4,998	733,363	156,517	22,345
1925	2,814,586	1,163,163	36,414	11,810	892,325	149,739	7,753
1926	3,358,029	1,375,598	10,210	2,872	886,941	109,899	39,196
1927	3,048,362	1,227,766	19,310	2,861	739,102	97,164	66,682
1928	2,588,436	1,026,491	96,176	15,876	850,722	102,503	97,656
1929	2,617,125	835,440	27,959	6,570	859,910	116,279	102,504
1930	1,828,665	597,834	88,446	15,515	1,052,331	99,672	117,252
1931	1,194,800	369,299	519,946	50,653	2,231,103	111,278	149,555

Huge Increase in 1932 Imports

The figures covering monthly general imports for 1931 and the first 8 months of 1932 under these classifications, in Table 4, show that the number of golf balls imported thus far in 1932 is over 55% higher than in 1931, the number of balls entered as tennis balls is this year 5.5 times greater than last, and the quantity of other balls imported has increased over 3.6 times. The value of rubber toy imports is lower, but it is probable that even in this category the quantity of imports has actually increased this year. The effect on American labor through loss of work is indicated better by the quantity than the value of the imports. The "general import" statistics differ somewhat from those for "imports for consumption," owing to adjustments on account of reexports, in transit shipments, and stocks held temporarily in bonded warehouses.

Taken as a whole, the increase in 1932 imports of rubber balls and toys means that domestic manufacturers of these goods have suddenly lost an important percentage of their domestic business. This fact means less employment for wage earners, and in addition (because of factories working short time) an increase in the percentage of costs chargeable to overhead, which must make it difficult for local producers to compete in price.

TABLE 4. GENERAL IMPORTS OF RUBBER TOYS AND RUBBER AND OTHER BALLS, MONTHLY, 1931-1932

1931	Golf Balls Number	Golf Balls Value	Tennis Balls Number	Tennis Balls Value	Other Balls Number	Other Balls Value	Rubber Toys Value
Jan.	10,896	$2,661	12,660	$1,723	168,044	$4,657	$3,973
Feb.	65,414	19,984	61,858	7,552	40,464	4,310	5,525
Mar.	113,836	35,492	51,804	6,877	99,933	4,384	10,589
Apr.	153,709	47,722	63,138	7,253	208,825	13,187	14,032
May	230,124	69,779	67,812	7,761	55,464	7,842	19,155
June	190,576	62,914	88,184	12,004	129,579	8,886	21,344
July	72,516	24,069	12,084	1,588	115,288	9,425	16,223
Aug.	38,388	13,301	6,288	1,239	207,593	6,865	7,139
Sept.	69,008	22,762	93,627	2,789	91,551	14,084	16,993
Oct.	44,653	10,745	25	6	220,104	10,779	14,042
Nov.	242,720	71,265	3,000	294	472,756	17,416	14,528
Dec.	32,184	7,661	49,386	1,192	431,582	9,817	12,633
Total	1,264,024	$388,355	509,866	$50,278	2,241,183	$111,652	$156,176
1932							
Jan.	38,582	$9,093	193,224	$3,453	621,615	$10,650	$8,543
Feb.	80,556	19,069	239,167	5,055	81,297	5,788	18,688
Mar.	268,176	61,803	285,144	7,977	92,695	7,824	11,666
Apr.	308,832	74,523	289,656	5,117	280,158	21,902	6,490
May	218,803	51,345	294,464	14,202	587,581	37,657	9,114
June	228,183	53,293	438,986	8,239	652,768	29,008	15,070
July	152,192	34,408	231,297	3,480	656,344	29,425	5,042
Aug.	68,280	13,621	87,964	1,110	771,827	32,387	10,341
8 Months							
1932	1,363,604	$317,155	2,059,902	$48,633	3,744,285	$174,641	$84,954
1931	875,459	275,922	363,828	45,997	1,025,190	59,556	97,980

Sources of Ball Imports

It is no doubt more than a coincidence that the increase in imports followed the abandonment of the gold standard by many countries. The imports of golf balls and tennis balls continue this year to come mostly from the United Kingdom, although in the 8 months' period imports from Japan entered as tennis balls numbered 168,733, value only $811, an average value of $0.48 per 100 balls. The tennis balls imported from the United Kingdom averaged $2.52 per 100 balls in declared value. These low values indicate that under this heading the increased imports may be largely ping-pong balls (of material other than rubber).

In order to analyze the import figures for "other balls" the following table of total general imports by sources is given for 1931 and the first 8 months of 1932. Note that the 1932 increase in our imports is from Japan while the imports from other countries have declined generally.

TABLE 5. IMPORTS OF OTHER BALLS BY SOURCES, 1931 AND 1932

	1931 Number	1931 Total Value	1931 Value per 100	8 Months, 1932 Number	8 Months, 1932 Total Value	8 Months, 1932 Value per 100
United Kingdom	1,344,562	$61,167	$4.55	88,718	$16,012	$18.05
Japan	503,604	20,311	4.04	3,476,169	143,388	4.12
France	135,078	1,868	1.38	1,068	295	27.62
Austria	79,922	7,351	9.32	29,321	2,142	7.30
Germany	73,189	4,895	5.69	69,570	502	0.72
British India	70,393	5,629	8.00	44,842	2,750	6.13
Other countries	34,535	10,431	30.40	34,597	9,552	27.61
Total	2,241,283	$111,652	.....	3,744,285	$174,641	.....

Rubber Ball Imports Almost Wholly Japanese

It may be observed that the imports from the United Kingdom, France, and Germany have changed in character this year as compared with 1931, the unit values indicating that imports from the first 2 of these countries consist of much higher priced balls. The classification "other balls" is a catch-all for all kinds of balls including those of rubber. The low priced 1932 imports from Germany practically all entered in January when the reported figures were 61,209 balls, value only $56; it is impossible to tell of what this shipment consisted. The imports under "other countries" came from Italy and Canada and are evidently high priced balls, possibly of other material than rubber. The import trade in rubber balls has fallen almost entirely into Japanese hands and the average declared value of the imports is $4.12 per 100 balls thus far this year against $4.04 in 1931.

In order to analyze the figures more closely, the monthly imports of "other balls" from Japan and the United Kingdom are shown below for 1931 and 1932. United Kingdom has made no large shipments to us since the last quarter of 1931 when the imports from Japan first reached a volume basis, the December imports from Japan accounting for over half their 1931 total. The imports from Japan have reached increasingly higher figures for the months of 1932.

TABLE 6. IMPORTS OF "OTHER BALLS" BY PRINCIPAL SOURCES

1931	United Kingdom Number	United Kingdom Value	Japan Number	Japan Value	Other Sources Number	Other Sources Value
Jan.	158,688	$3,782	4,302	$533	5,054	$342
Feb	37,831	3,790	.....	.....	2,633	520
Mar.	89,065	2,940	456	21	10,412	1,423
Apr.	176,078	8,851	8,592	1,073	24,155	3,263
May	40,476	4,986	5,208	636	9,780	2,220
June	77,022	5,617	26,904	1,136	25,653	2,133
July	31,199	5,341	44,976	590	39,113	3,494
Aug.	163,534	5,572	7,488	231	36,571	1,062
Sept.	6,550	4,926	48,528	4,692	36,473	4,466
Oct.	146,778	4,415	38,184	3,087	35,142	3,277
Nov.	280,554	7,554	36,636	2,858	155,566	7,004
Dec.	136,787	3,393	282,330	5,454	12,465	970
Total	1,344,562	$61,167	503,604	$20,311	393,017	$30,174
1932						
Jan.	15,168	$1,822	544,788	$8,641	61,659	$187
Feb.	9,193	614	65,098	4,582	7,006	592
Mar.	1,946	410	80,114	5,327	10,635	2,087
Apr.	21,954	2,677	229,684	14,440	28,520	4,785
May	16,875	3,298	537,080	30,667	33,626	3,692
June	10,728	2,893	624,158	24,413	17,882	1,702
July	3,208	1,252	647,623	27,145	5,513	1,028
Aug.	9,646	3,046	747,624	28,173	14,557	1,168
3 Months						
1932	88,718	$16,012	3,476,169	$143,388	179,398	$15,241
1931	773,893	40,879	97,926	4,220	153,371	14,457

Declared Values Indicate Lower Prices in Japanese Currency in Recent Months

It is, of course, not possible definitely to prove that these imports from Japan have consisted only of rubber balls, but if it were assumed that the monthly imports averaged about the same proportion of rubber balls regularly, the average

declared values tell an interesting story. Beginning with October, 1931, (just after England went off the gold standard), the imports from United Kingdom averaged in value $3.01 per 100, in November $2.69, and in December $2.48. Imports from Japan averaged $9.67 per 100 in September, $8.08 in October, and $7.80 in November, then in December dropped to $1.93, and in January declined further to $1.59. By the end of December the cheap balls from England appear to have been driven out of the market. In February the average declared value of Japanese balls was $7.04 per 100, but since then with increased shipments and further depreciation of the yen this average has fallen steadily, reaching $3.77 in August. The "declared values" would indicate that the prices in yen have declined since February and that the lower values result not only from the depreciation of the yen but from price reductions on a yen basis. For September and March the average values were well in line with the exchange values of the yen for those months.

Rubber Toy Imports Now Mostly from Japan

The imports classified as rubber toys have in the past come mainly from Germany, Austria, and other European countries, Japan contributing only a small share. During the past 2 years imports from Japan have increased to over 50% of the total. Unfortunately, no statistics are recorded as to the quantity of the imports, only the declared values being reported. The statistics for July and August, 1932, indicate that Japan is rapidly forcing other foreign competitors out of this market, and that future imports may be supplied almost exclusively by Japan, which furnished 93% of the total in the last 2 months.

To the extent that this competition from imports is due to currency depreciation of the countries supplying the goods, it may be regarded as a temporary condition. Eventually world prices will become adjusted and temporary advantages through currency depreciation will be washed out. To the extent that the competitive situation results from lower production costs abroad than in this country (comparative material, labor, and overhead costs) it appears likely to continue for many years, chiefly because of differences in wage levels. Comparable data as to the wages paid in these industries in different countries is not available.

The situation indicated by the above review of statistics appears serious enough to warrant careful consideration and action of some kind by the rubber ball and toy section of the industry.

TABLE 7. MONTHLY RUBBER TOY IMPORTS INTO UNITED STATES

	Germany	Japan	All Other	Total
1931				
Jan.	$347	$2,335	$1,291	$3,973
Feb.	2,335	356	2,834	5,525
Mar.	2,707	4,804	3,078	10,589
Apr.	6,926	2,866	4,240	14,032
May	11,493	4,543	3,119	19,155
June	11,681	3,953	5,710	21,344
July	6,646	8,452	1,125	16,223
Aug.	2,889	3,550	700	7,139
Sept.	624	13,831	2,538	16,993
Oct.	914	7,612	5,516	14,042
Nov.	5,822	4,128	4,578	14,528
Dec.	468	10,007	2,158	12,633
Total	$52,852	$66,437	$36,887	$156,176
1932				
Jan.	.....	$7,619	$924	$8,543
Feb.	$9,593	4,261	4,834	18,688
Mar.	6,782	3,716	1,168	11,666
Apr.	233	4,245	2,012	6,490
May	668	5,650	2,796	9,114
June	5,741	6,356	2,973	15,070
July	194	4,788	60	5,042
Aug.	220	9,540	581	10,341
8 Months				
1932	$23,431	$46,175	$15,348	$84,954
1931	45,024	30,859	22,097	97,980

Pliable Artificial Leather

IN THE manufacture of artificial leather, sheetings, textile fabrics, felts, and papers are sometimes impregnated with aqueous dispersions of rubber such as latex in natural or vulcanized condition or artificial dispersions of crude or reclaimed rubbers. The rubber is then coagulated by drying or treatment with dilute acid, followed by vulcanizing the impregnated product if desired.

It has been found[1] that if artificial leather sheetings are mechanically worked and stretched while wet and then dried, they are made remarkably pliable and at the same time improved in strength, stretch, and tear resistance. An apparatus designed for this purpose, shown in the illustration, operates as follows:

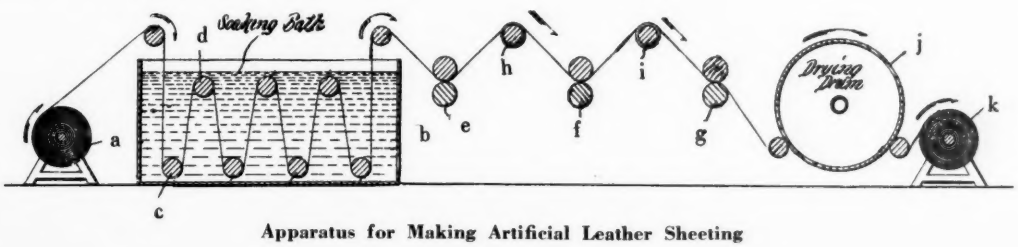
The rubber impregnated roll of sheeting *a* is first passed into a soaking bath of water *b* in which guide rollers are arranged in a lower series *c* and an upper series *d* to keep the sheeting submerged in its passage through the tank. The water soaked sheeting emerging from the bath is passed with gentle squeezing effect through a series of pairs of soft rubber covered rollers *e*, *f*, and *g*. The rollers of each pair may be driven at the same peripheral speed in order to avoid rubbing action and bruising of the faces of the sheet, but the rollers *f* should be driven a little faster than the rollers *e*, and *g*, a little faster than the rollers *f*, to effect longitudinal stretching of the sheeting.

Between rollers *e*, *f*, and *g* are mounted rollers *h* and *i* having herringbone ribbed surfaces so that the tensioned sheeting passes over them in tight contact with the ribs. Rollers *h* and *i* need not be positively driven; their rotation is effected by frictional engagement with the wet sheeting.

From the stretching rollers the wet sheet passes around a drying drum *j* and is wound dry on a roller *k*.

The mechanical working while wet, after once having been dried, results in a physical change in the form of the impregnated rubber making the material tough, leathery, and elastic.

[1]United States Patent No. 1,862,749, June 14, 1932.



Apparatus for Making Artificial Leather Sheeting

EDITORIALS

Another Warning for the Industry

RUBBER footwear manufacturers arose in protest and stormed official Washington when they saw what gigantic strides foreign footwear manufacturers were making in this country. As a result, the Tariff Commission is investigating the situation. Our manufacturers thus hope to restore the United States rubber footwear business to its former high level, giving work to labor, profit to capital, and his money's worth to the ultimate consumer.

It is earnestly trusted, however, that in the furor of this campaign, the inroad which alien competition is making in the local markets of another branch of our rubber industry—that of toys, balloons, and balls—will not be ignored. Like an insidious disease, imports of these products from foreign sources are steadily gaining, in the end completely to overwhelm American activities unless—

If the reader thinks we are unduly alarmed, let him study the details of the story "Growing Imports of Rubber Toys and Balls" appearing in this issue.

'Tis said, a word to the wise is sufficient.

Popularize the Raincoat

MANUFACTURERS of rubberized fabrics are in dire need of a merchandising oracle who will tell them how to distribute annually 100,000,000 yards of raincoat material that could easily be produced by existing equipment and without interfering with the output of other rubberized fabric types. How to increase the market for raincoats in order fully to utilize present plant capacity is the problem, tersely put.

The annual production of made-up raincoats is about 8,000,000 garments. These figures indicate that with an average of 3 years' service, less than 25,000,000 people wear raincoats. This is the utilitarian side of the business, and it is doubtful if this market could be widened to any great extent in competition with the umbrella. To attain the greatest distribution of the modern raincoat it should be sold on its merits as a rain garment possessing both style appeal and color effect.

When the public awakens to the fact that present-day raincoat materials form an attractive variety of new fabric types that are made up into garments with style, the raincoat will obtain the popularity it deserves, and a much wider use will follow.

The Planter's Plight

AN ELOQUENT appeal for those unfortunate European members of rubber planting staffs in the Far East who find themselves out of a job and far from home has been made by the Incorporated Society of Planters in Malaya.

Attention of planting company management is called to the possibilities of effecting important economies other than cutting estate labor and staffs. At the same time warning is given that the policy of discharging specially recruited staffs will result in destroying the prestige of the planting industry.

To a very great extent the financial condition of the European estates has been unavoidable, and particularly due to the world-wide collapse of commodity prices. However those skilled planters who have given the best years of their lives to the upbuilding of estate rubber should have first consideration, and every expedient in planting economies be thoroughly tried out by the management before dismissing the staff. There must be other ways to save money that would not eventually impair the value of the rubber estate.

Trade Associations and Profitless Selling

THAT the vanished profits in tires can be restored and the great industry which produces annually $700,000,000 worth of tires and tubes, can be returned to healthy dividend paying condition appears reasonable after reading what Charles F. Abbott, executive director of the American Institute of Steel Construction, has to say about the steel industry.

"Unless price cutting is stopped and prices advanced to the point where they will show a reasonable profit, then wages must be further reduced, increasing the volume of unemployment. Wage scales cannot be maintained, the unemployment problem solved unless profits are realized.

"The only known relief from our present difficulties is through the activities of our industrial trade associations, which are not only essential in promoting progress, but are of necessary benefit to members, to customers, and to the public.

"If there was ever a time when trade associations should receive united moral and financial support, it is during periods of distress. It is then that the combined energies of an industry should be set in motion and move forward aggressively."

What the Rubber Chemists Are Doing

A. C. S. Rubber Division Meetings

New York Group

THE first meeting of the New York Group of the Rubber Division, A. C. S., took place October 5, 1932, in the club rooms of the Building Trades Employers Club, 2 Park Ave., New York, N. Y. Nearly 100 attended the meeting and enjoyed the usual excellent dinner.

Announcement was made by J. P. Coe, chairman, that the next meeting will be held at the same place Wednesday evening, December 14, at 6:00 p. m. when officers for the ensuing year will be elected. Donald F. Cranor, Harry L. Fisher, and Carl J. Wright were appointed the nominating committee. The Committee on Program and Entertainment for the December meeting is R. E. Casey, P. R. McCampbell, and John M. Ball.

The program of the evening was opened by a pseudo-technical paper in light vein on "Freak Patents" read by Peter P. Pinto. Direct projector views were shown taken from United States patent specifications on devices that ranged from a trap for tape-worms to a silent alarm clock for the deaf!

E. T. Croasdale gave an interesting description of his trip around the world on a tank ship conveying latex from the Far East. The method of cleaning and lining the latex storage tanks with paraffine was described, also the piping facilities at Belawan, D. E. I., and the handling of cased rubber and its lighterage to the ship's side. The opinion was expressed by the lecturer that economic conditions of the depression will force many estates now out of tapping to revert to jungle and be a permanent loss.

A paper entitled "What's This About Super-Balloons" and illustrated by lantern slides was read by B. L. Lemon, Field Engineer, Development Division, United States Rubber Co., Tire Department, Detroit, Mich. The salient points of this comprehensive discussion are outlined as follows:

"The development of automobile tires shows continuous increase in size of tire section, reduction of air pressure, and in wheel diameter. The biggest single change occurred in 1923 from high pressure to the present balloon tire. The super-balloon tire is a potential factor in present day car design and may bring another radical increase of tire section in 1933. The suggestion of super-balloon tires did not originate with original equipment tire makers, but came from outside sales sources.

"Super-balloons may be defined as triple oversize sections used at reduced inflation on wheels less than 17 inches in diameter. In the introduction of these tires of great novelty value, 2 serious errors were made; they were introduced for field replacement and their oversize was too great for lightweight cars. Automobiles and tires are nicely balanced products. No extreme modification in tires can be relied upon to produce the gradual systematic improvement demanded by the car owner.

"In the matter of design super-balloons are now further advanced in development than the average cars on which they will ultimately be used successfully. Tests show that blowouts of these tires cause the driver more difficulty in handling the front end of his car, but not its rear end, than in the case of standard balloons.

"The super-balloon has quickened the spirit of finding out what is bad about cars and correcting the bad spots. Coming as it did in a depression, its lesson should produce a closer articulation of the principles of economy and research. Neither the car nor the tire is finished—no, not half."

Boston Group

THE opening meeting of the 1932-33 series of the Boston Rubber Group, of the American Chemical Society, will be held November 2, 1932, at the University Club, Boston, Mass. Dinner will begin at 6:30 p. m. Tickets, which are $1.75 each, may be obtained from the secretary, J. J. Sindler, Converse Rubber Co., Malden, Mass. The program follows:

"Business Outlook" by Ralph D. Wilson, vice president, Babson Statistical Organization, Inc., Wellesley Hills, Mass. "The Rubber Making Properties of Zinc Oxide with Some Notes on Its Manufacture and Methods of Testing" by Harlan A. Depew, Research Department, American Zinc Sales Co., Columbus, O.

Akron Group

THE Akron Rubber Group, Rubber Division, A. C. S., will hold its fall meeting on November 7 at The Akron City Club. Dinner will be served at 6:30 o'clock. An unusual entertainment feature will be presented during the dinner hour.

Ward T. Van Orman, of the Goodyear Tire & Rubber Co., and Lt. Commander Thomas Settle will speak on the International Balloon Race and their return trip on the Zeppelin and by plane. W. E. Sykes, of the Farrel-Birmingham Co., will present a paper on the history of power transmission especially as related to gears.

Aging of Rubber

PROF. HUGH S. TAYLOR[1] in the Seventh Edgar Marburg Lecture[2] discussed "Fundamentals in the Problem of Resistance to Deterioration." The lecturer grouped these fundamentals as follows:

The problem of control in processes of deterioration is the problem of control of the speed of chemical reactions. The fundamental reactions in deterioration are oxidation processes involving oxygen, steam, or other less universal oxidizing agents as well as reactions of polymerization, decomposition, and depolymerization. Heat and light, ionization, pressure, and the presence of accelerating agents are the important factors which influence the speed of such processes and are thus of major importance in a discussion of the fundamentals of the problem. Control of deterioration is the inverse of the historical occupation of the chemist. Since alchemical times his prime concern has been the promotion of chemical reactions. A belated attention to the problem of preserving his synthetic achievements is not, however, without its own peculiar scientific interest and practical significance.

The deterioration of rubber was one of the examples taken as illustrating the importance of the fundamentals cited above.

Aging of Rubber

The aging of rubber, whereby it becomes hard and brittle, the development of cracks and loss of resistance to abrasion, the development, too, of stickiness in rubberized materials are all familiar phenomena. It is readily shown that the deterioration is due to the oxygen of the air, to light action, or to both. The oxygen adds to the double bonds in the molecular structure and also promotes a decomposition of the rubber molecule, the latter continuing after the first is complete. The oxygen absorption curves are auto-accelerating in nature. During the course of the absorption the rubber first becomes tacky; then the tackiness disappears, and it becomes weak. Finally it becomes hard and brittle. The tackiness occurs at 80° C. after absorbing only 0.02 to 0.05 mole of oxygen per $C_{10}H_{16}$ unit. After approximately 0.5 mole is absorbed the tackiness disappears and hardness and brittleness is reached after 1.0 mole is absorbed per $C_{10}H_{16}$ unit. The tensile strength shows a tremendous change as a result of oxygen absorption. Absorption of oxygen equal to 0.5% decreases the

[1] David B. Jones Professor of Chemistry, Princeton University, Princeton, N. J.

[2] Read on June 22, 1932, before the annual meeting of the American Society for Testing Materials, Atlantic City, N. J.

tensile strength by nearly 50%, the diminution in strength being directly proportional to oxygen absorption over the range 0 to 1%.

It is significant that the oxygen absorption is dependent on the curing process. The rate of oxygen absorption for raw rubber is less than that for cured rubber and increases with the degree of cure, facts in agreement with observations on the natural aging of cured rubber. Overcuring increases the rate of absorption of oxygen. It is certain, however, that the effect of oxygen on rubbers of different degrees of cure is not the same in all cases; the system is complex. The oxygen absorption and also the aging qualities of rubber are profoundly modified by incorporating in the rubber small amounts of chemicals known as antioxidants, antiagers, or ageresistants. Condensation products of aliphatic aldehydes and aromatic amines of various degrees of substitution are important members of this group of substances. It has been established that their influence is exercised on the rate of oxygen absorption; they materially reduce the rate of oxygen absorption, normally the more effectively the greater the concentration and dependent to a major degree on the constitution of the added inhibitor. They, therefore, behave analogously to the inhibitors of oxidation processes already discussed. The detailed interpretation of their action is naturally much more difficult than in the case of the simpler oxidizable compounds discussed in the theoretical portion of this work. There is evidence that raw rubber itself contains natural inhibitors of oxidation; hence the slow oxidation found with such material.[3]

As might be expected, deterioration is also sensitive to acceleration by catalysts, and, as an example, the case of copper stearate may be cited. This substance is a vigorous accelerator of deterioration due to oxidation. Jones and Craig[4] show that antioxidants bring about a retardation of deterioration in the presence of the copper accelerator roughly in the order of their efficiencies in absence of copper, the actual rates of deterioration being much greater, however, when copper was present than when absent. The presence of copper did not change the type of curve obtained with varying amounts of the inhibitor phenyl-β-naphthylamine, which, in presence and absence of copper, did not markedly influence the rate of deterioration when present in concentrations beyond about 1% inhibitor. The research shows that the catalyst and inhibitor each exercises its normal functions and that together they tend to neutralize the effect due to each. The possible catalytic effects of added materials is a matter of importance in the choice of pigments to be compounded with rubber. Experience shows also the importance of light in this case. It undoubtedly speeds up the reactions that are involved.

[3] For literature survey and oxygen absorption studies, see Kohman, *J. Phys. Chem.*, Vol. 33, p. 226 (1929); *Rubber Chem. & Tech.*, Vol. 2, p. 390 (1929).

[4] Jones and Craig, *Ind. Eng. Chem.*, Vol. 23, p. 23 (1931).

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Grit Free Carbon Black [1]

CARBON black for tire treads and other purposes where maximum reenforcement of the physical properties of rubber are desired is now being manufactured to screen through 325 mesh to insure uniformly fine particle size and freedom from fine grit. Mixing and processing troubles are often attributed in some degree to carbon black, particularly when it constitutes a substantial portion of the entire tread mix. Thus the problem of flex cracking has come into greater prominence owing both to the more flexible construction of the tire and heavier black compounding which naturally involves increased stiffness. For this reason the fineness of carbon black or rather the amount of fine grit present is of increased importance in modern tire tread compounding.

It has recently been found that 2 samples of black, apparently identical by ordinary physical tests, may differ as much as 1% of residue on a 325-mesh screen. Conceivably this difference might amount to 5 or 6% if 600-mesh screening were practicable.

The importance of this fine grit factor is recognized in revised purchasing specifications for carbon black. The new type material represents production that meets the 325-mesh grit test. The added control and refinement required in its production results in more uniform particle size which may prove an important factor in improved dispersion. The test is one that can be readily checked by producer and consumer.

[1] "The New 'Specification' Carbon Black." R. H. Eagles, *India Rubber J.*, Sept. 10, 1932, pp. 312-13.

Latex Applications

Latex Jazz Ornamentation

COLORED jazz-type ornamentation particularly effective on toy balloons is also applicable to other rubber articles of hard or soft rubber through the medium of latex[1] as outlined below.

The method consists in introducing a shape or former into a bath containing at least 2 mixings of rubber latex prepared as follows:

A main quantity of latex mixing of natural color or artificially colored and of fairly high viscosity is placed into the bath and then at least one smaller quantity of a latex mixing preferably of the same viscosity as the main quantity but of different color is placed on the surface of the main quantity. If desired, the 2 or several mixings may be caused to intermingle by a gentle irregular movement of the surface. Alternatively the 2 or several mixings may be left undisturbed until the shape or former or surface is introduced therein or, if within the latex, withdrawn therefrom.

If it is desired to produce a handle grip, the shape or former may be rotated in any manner during its introduction into the prepared bath.

In the case of making a tobacco pouch the former is dipped straight into the mixture without any irregular movement.

The subsequent setting of the deposits can be effected merely by drying, with or without heating, or by the immersion of the deposits into any suitable dehydrating or setting solution.

In making dipped articles which are subsequently stripped from the formers, a jazz effect is produced on the rubber surface which is adjacent the surface of the former or shape so that in order to bring the jazz effect to the outside of the finished article the latter must be turned inside out. If this position is undesirable or impossible, an external jazz effect can be obtained by inserting the surface to be coated into the bath before it is prepared and then after preparing the bath withdrawing the surface through the multicolored surface of the bath.

An example of a main latex mix suitable for the production of a jazz handle grip is:

	Parts Expressed as Dry Rubber
Rubber as latex	55
Sulphur	2
Zinc diethyldithiocarbamate	0.4
Zinc oxide	3.0
Whiting	18.
Barytes	17.6
Pigment: e. g., ultramarine	4.
	100.0

Upon this main latex mix there is placed in small quantities one or more latex mixes preferably of similar composition except that they contain different colors. The total amount of solids in the main latex mix is approximately 73% while the ammonia content on the total solids may conveniently be 0.1%.

[1] U. S. Patent No. 1,849,246, Mar. 15, 1932.

Rubber Latex Product

THIS invention relates to a process for treating rubber latex by which a rubber of improved characteristics will be produced.

Thus incorporated in latex is an easily hydrolizable salt of a volatile acid and a volatile base in quantity sufficient to impart a pH value adjacent to or below neutrality (pH = 7) to the rubber obtained by evaporating the latex. Rubbers treated in this manner have greatly improved milling characteristics. They may be broken down with a minimum expenditure of power and time to produce a uniformly plastic rubber that can be easily calendered, extruded, and processed in the preparation of rubber articles.

In general such rubber requires somewhat longer time for its optimum cure. In every case where the salts of the character described have been added, they have greatly increased the flexibility of the vulcanized rubber. Any retarding effect on the cure may be readily overcome in commercial work by increasing the amount of the accelerator.

Leather Waterproofing

RUBBER compositions obtained by dissolving crude rubber in volatile solvents or by mixing rubber with oils are lacking in leather waterproofing property. The reasons are the small amount of rubber they contain and the inability of the rubber to penetrate the leather.

A suitable composition for both stuffing and waterproofing leather is an emulsion using rubber latex as a source of rubber.[1] The mixture comprises rubber latex, gasoline, paraffin wax, paraffin oil, and 10% soap solution. This gives a composition of proper consistency for ordinary waterproofing purposes.

The rubber in this form freely permeates leather without being filtered out and left on the surface. The residue of the composition which remains in the leather after the solvent has evaporated is sufficiently plastic to preserve the softness or pliability of the leather. It is not affected by atmospheric oxidizing agents nor is it washed out by wetting and drying of the impregnated material.

Rubber latex alone may be used for waterproofing or filling leather, the latex being diluted as required to obtain the desired impregnation. In any form in which it is used the latex may be vulcanized before or after impregnation.

[1] U. S. Patent No. 1,860,651, May 31, 1932.

Hard Rubber Dust

IN COMPOUNDING hard rubber stocks one of the ingredients used for many years has been hard rubber dust. Probably the first use of this material was merely to furnish an outlet for scrap hard rubber. However it has been known for a long time that adding hard rubber dust to a hard rubber compound imparts a number of desirable properties such as reducing shrinkage in the mold, imparting gloss to the molded article, and giving a faster rate of cure. As a result of the demand for hard rubber dust, it has been necessary to supplement the supply of scrap hard rubber by curing mixtures of crude or reclaimed rubber with sulphur to hard rubber and then grinding the product.

As an example of the process, rubber latex of suitable concentration in quantity, sufficient to provide 100 parts of rubber solids, with or without previous treatment such as creaming, stabilizing, or addition of compounding ingredients, is mixed with from 30 to 100 parts of sulphur in a suitably prepared form. Preferably the finely divided sulphur is mixed into an aqueous paste along with a small amount of a material such as soap, glue, the alkali salts of casein, sulphonated castor oil, or the trade product known as Nekal, which is a condensation product of an aromatic hydrocarbon and an aliphatic alcohol in the presence of sulphuric acid.

The mixture of the sulphur and the rubber latex is then placed in an autoclave and heated for from 8 to 10 hours at approximately 40 pounds' steam pressure. Free sulphur may then be removed from the resulting cured latex, and the latter may be spray dried by any of the usual forms of apparatus for spray drying latex. Any excess sulphur can be readily removed from the cured latex before spray drying by sedimentation, screening, centrifuging.

The average particle size of the hard rubber dust obtained by the above process is very fine; the particles are much more uniformly cured than by the prior process, and they are of globular instead of irregular shape.

Instead of using a natural latex, an artificial dispersion of raw or reclaimed rubber may be compounded with from 30 to 100 parts of sulphur in a suitable form and autoclaved for from 8 to 10 hours at 40 pounds' steam pressure, and the solids may be recovered from the resulting cured dispersion by spraying in a heated atmosphere as described in the first example. In this case also the particles of the finished product are very fine, uniform in size and shape, and uniformly cured.

By this process a finely divided hard rubber dust of comparatively uniform particle size and composition may be obtained and that without fire risk or the inconveniences of the usual grinding process.

New Goods and Specialties

Ventilated Sponge Rubber Cushions

AN IMPROVED sponge rubber cushion with clever means of ventilation has been perfected by The K & W Rubber Co., Delaware, O. The Vento-Comfort Sponge Rubber Cushion, as it is named, is channeled underneath. Holes pass through the top felt and through the sponge itself, into the channels. Air thus can easily circulate in and out of the pores of the sponge, which is of a special compound, allowing them quickly to open to produce a buoyant, comfortable cushion. Every movement pumps air through the channels and holes and also through the innumerable tiny pores in the sponge.

This cushion may be used in your office, in your car, in fact anywhere. It is said that it will not slip at any time as the underside has cloth impressions and the rubber bars grip the chair.

Vento-Comfort comes in 3 sizes of green or brown rubber covered with the same color felt: 401, steno size, is 14½ by 15 by 1¾ inches; 402, medium, 16 by 17 by 1¾ inches; and 403, large, 17 by 18 by 1¼ inches. The top edges are beveled, and the front has a deep bevel that fits the contour of the body.

Stool cushions fashioned along the same lines likewise are available. They are non-skidding; the edges of the rubber bar grip the stool in every direction. If so desired, the cushion may be cemented onto the stool, although such action is unnecessary. These Vento-Comforts appear in the same colors as do the chair cushions, also with beveled edges. Three sizes, all ¾-inch thick, are made: No. 10 with a diameter of 10½ inches; No. 12, 12½ inches; and No. 14, 14 inches.

New Heat Resisting Hose

ASKED to develop a welding hose with a greater resistance to burst when subjected to contact with molten steel than any standard hose on the market, The B. F. Goodrich Co., Akron, O., produced "Fire King." It was submitted to 90 pounds' internal air pressure, laid on a crushed limestone foundation, and covered with molten metal from the open hearth furnace at a temperature of 2,000° F. The best grade of ordinary welding hose burst in 5 to 10 seconds, but Goodrich "Fire King" was said to last 1½ minutes. This test, of course, is far more severe than anything to which the hose would be subjected in actual service. The second test was to submit the hose without internal pressure to the discharge from a burning or cutting tip for 2 minutes. The hose was then dissected, and the condition of the interior was reported to be very good.

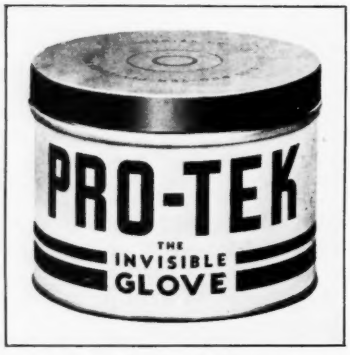
The maximum length of this hose is 50 feet. The rubber is especially com-

"Fire King" Welding Hose

pounded for heat resistance. The inner plies are wrapped fabric; the outside ply consists of braided asbestos yarn, and the rubber cover is 3/32-inch thick. "Fire King" welding hose comes in ¼-, 5/16-, and ⅜-inch sizes, 50-foot lengths in both red and green.

Cleaner for Hands

FOR years men who work with their hands in such stubbornly adhering materials as lacquer, paint, varnish, grease,

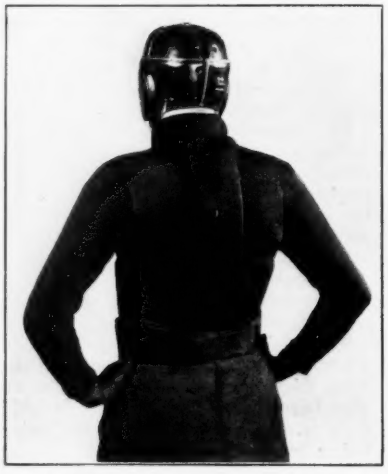


Pro-Tek Hand Cleaner

oil, etc., have had much difficulty in cleaning their hands. They had to use solvents and harsh abrasives which in themselves may be harmful to the skin.

Now protection from such stubborn materials and from the use of abrasives is available in Pro-Tek, a white cream which, when rubbed into the skin before working, forms a protective film, soluble only in water, and which sticky substances and soiling materials are powerless to penetrate. Pro-Tek is said to be the first material that actually prevents dirt and liquid from entering the pores of the skin; hence its description as "the invisible glove." Pro-Tek is not only harmless to the skin, but actually beneficial. In addition it leaves no sticky or greasy feeling.

Severe tests showed that when Pro-Tek is used, lacquer, paint, grease, metallic dusts, and similar materials can be quickly and completely removed by washing the skin under running water. Even battery acid, gasoline, and naphtha are unable to reach the skin through Pro-Tek. Therefore, workers who have always had dry, cracked, or stained hands can now keep them soft and healthy through the use of this new material. In addition it is helpful in preventing oil dermatitis and other industrial skin diseases. The DeVilbiss Co., Toledo, O.



Neuro Protective Jersey

Rubber in Football Equipment

THE number of fatal football accidents last year was appalling. Naturally many ways were considered to protect the player more adequately. Rules were changed, and means were devised to make the equipment worn prove of greater protection to the participants of the game.

Realizing that most severe injuries are caused by certain kinds of shocks on the nervous system, transmitted from the point of contact to these centers of the body, Wilson-Western Sporting Goods Co., 2037 Powell Ave., Chicago, Ill., has produced jerseys, jackets, and shoulder harnesses, under the trade name Neuro Protective, with special features to cover vital spots. To protect the spinal column this equipment boasts a long piece of molded corrugated fiber board encased in white felt and inserted in a drill pocket sewn to the inside of the jersey. This protector extends down the spine to slightly below the waistline to overlap the tail bone protector, which is of similar construction. These protectors are removable.

The back of the neck is another point of danger. Here rubber is used. The roll collar of foam rubber encased in a water repellant fabric and inserted and sewn in place between the 2 layers of jersey fabric forming the jersey collar is built high in the back, but is tapered down the front for comfort and freedom of movement. A crescent shaped felt padded fiber protector is stitched to the inside of the jersey immediately below the collar and overlaps the upper end of the spinal column protector.

New Machines and Appliances

Latex Cementing Machine

THE use of latex cements in the manufacture of leather shoes is a relatively new advance in that industry. Several machines have been perfected for applying latex cement as utilized in the various processes of shoemaking. These machines save time, labor, and cement and do away with the untidy paste pot and brush.

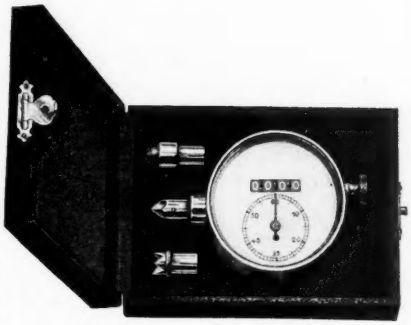
The illustration represents one of these machines perfected for applying latex cement to one side of outsoles, insoles, taps, top-pieces, etc. It economizes in the use of adhesive for just the required amount of cement is fed to the roll and wastage is reduced to a minimum.

This machine is of simple design and readily adjustable to meet any requirement. It is available in either floor or bench type for factory power. United Shoe Machinery Corp., 140 Federal St., Boston, Mass.

New Cameron Slitting Machine

THE machine pictured is a new model designed to slit fabrics, rubber, artificial leather, paper, etc., when the rolls to be cut are 18 inches or less in width. It effects a clean cutting job. The rolls are uniformly wound, straight on the sides, and of uniform density throughout.

The standard Camachine score-cut method of slitting is used, and special narrow slitters may be supplied to produce widths as narrow as ¼-inch. One h.p. takes care of the power requirements of this machine and will run it at speeds up to 400 ft. per min. The machine will accommodate a mill roll up to 18 inches in diameter. Its maximum rewind diameter is 17¾ inches. Cameron Machine Co., 61 Poplar St., Brooklyn, N. Y.



Isgus Indicator and Stop Watch

Speed Indicator and Stop Watch

THE instrument here pictured represents a happy combination of speed indicator and stop watch that is highly important for time study purposes. The use of the ordinary revolution counter necessarily requires the use of a pocket or stop watch, and a considerable degree of skill is required.

The perfect coordination of the functions of timing and recording is impossible by the use of 2 separate instruments so that accuracy cannot be obtained. The combination instrument pictured insures absolute accuracy because these 2 functions are combined in one simple mechanism. It is not a delicate apparatus, but a tool for every-day shop use.

No experience is required to use it, and the results are absolutely certain. When the point is pressed against the revolving object to be measured the timing mechanism starts to register by seconds and fractions and the revolutions are simultaneously recorded. Removal of the instrument from the work causes these functions to cease automatically, and the dial shows the results.

By turning the knurled stem wind as with an ordinary watch both the time hand and the recorder numbers are set back to zero. This action also automatically winds up the watch spring, which is adjusted to slightly more than a minute run; furthermore it cannot be overwound no matter how much the stem wind is turned.

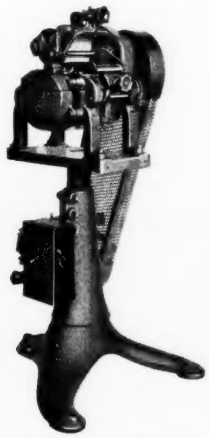
The instrument also has a dead run which permits of getting position on the job; then a slight pressure sets the mechanism in motion. The design of the mechanism of winding, setting the hands, and the recorder figures provides for a single control and thus makes it impossible to cause injury to any of the parts by an accidental meshing of gears or pinions. The Gerold Co., 120-122 Liberty St., New York, N. Y.

Telechron Timing Device for Banbury Mixers

THE purpose of this device for Banbury mixers is to provide a means of signaling to the operator by flashing a light supplemented by ringing a bell or gong, if desired, as various stages of the mixing operation are completed, thus insuring uniformity of procedure necessary for the compounding of stock.

This timing device with the charts showing pre-determined standards of procedure brings a positive control to the operation of the mixer and greatly aids the maintenance of uniformity. The electric circuit is arranged for 110 volts, a telechron motor being used to drive the mechanism, with a switch for disengagement. The lights furnished with a standard instru-

Camachine 22 Model 2



U. S. M. C. Sole Cementing Machine — Model C

Banbury Telechron Timer

ment are of varied colors so that the different stages of the process may be distinguished.

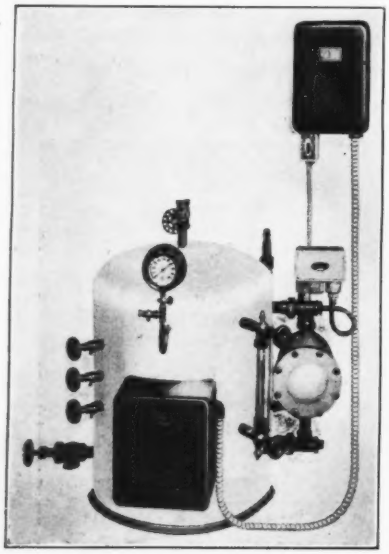
The pointer is hinged to permit easy placement of the unslit chart and is driven by friction engagement so that it may be set to zero, either forward or backward. The pointer registers the position of the rotating contact arm, which makes connection with the adjustable contact points for the successive signals.

The speed of rotation is arranged for the accommodation of short or lengthy batch periods, provision being made to have the pointer revolve once in 10 minutes or once in 20 minutes. When setting the adjustable contact points in accordance with signal positions required, they may be grouped closely together if necessary. Farrel-Birmingham Co., Inc., Ansonia, Conn.

Electric Steam Boiler

AN EXAMPLE of an electrically heated, full automatic steam boiler is here pictured. It is available in 6 standard models in ratings ranging from 7.5 kw. to 90 kw.; the operating voltages are either 110-125 or 220-250. The boilers conform to A. S. M. E. and Massachusetts codes.

The field of application includes installations where main boiler plants must be run at low load to deliver process steam outside the normal heating season; where small amounts of steam are needed at extra high pressure; where process steam is required infrequently at points distant from the main boiler; where explosive atmospheres debar flame heating; where local fuel-fired boilers are objectionable; where hydro-electric energy is economically available; and where all-night process steam is wanted. In general, the equipment is competitive with fuels where the energy rate is 3 cents per kilowatt hour or less. General Electric immersion and switching units are used with this equipment. Commonwealth Electric & Mfg. Co., 83-105 Boston St., Boston, Mass.



Comm-o-lectric Boiler

Air Line Coupler

Schrader Hose Coupler

A STURDY new hose coupler has recently been placed before rubber factory engineers. It contains an automatic check valve and is outwardly protected against damage by a heavy rubber protector that encases the barrel. The coupler makes an airtight connection and is a most handy means of quickly connecting various service devices to an air hose. A practical method is to attach each device to a 6-foot length of hose with a connecting unit of the coupler on the opposite end. Then with the check valve attached to the line from the air tank one can quickly attach a spray gun, blow gun, or air chuck as desired.

The coupler permits free flow of air, when in use, with no loss by leakage. It forms a perfect check on the end of the air hose when uncoupled. It is just the thing to detach quickly the air line from the compressor outlet when one wants to take the air line at night and reconnect it by day. Parts that become worn from service can be easily replaced. A. Schrader's Son, Brooklyn, N. Y.

Tire Groover

TIRE manufacturers, dealers, repair men, fleet owners, and others interested in servicing or reconditioning tires for resale will have special interest in the pattern tire groover pictured in the illustration. This tool is made in 6 sizes. They are electrically heated to cut new non-skid treads in "bald head" tires. The largest model has an extra large heating element for regrooving truck tires. There are 6 blade sizes stamped from best tool steel and hand sharpened.

Kwick-Kut Electric Tire Groover

On the larger models is an adjustable guide used as a mark finder for the first groove. It automatically guides the blade in additional grooves, acts as a rest for the tool when not in use, and prevents burning articles on the bench.

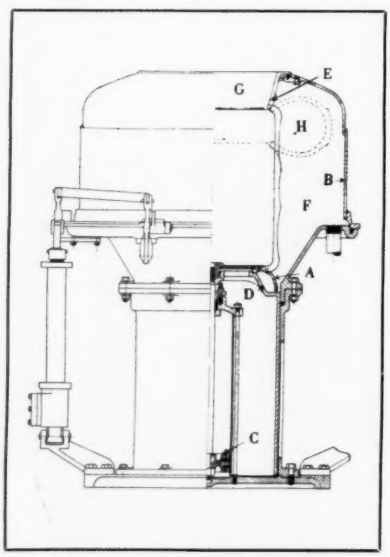
The light weight of these tools permits flexibility in cutting curves, circles, angles, and straight grooves. The adaptability of the tool for cutting pattern retreads is a feature of special value and profit. Kwick-Kut Mfg. Co., Inc., 3828 Arsenal St., St. Louis, Mo.

Vacuum Tire Expander

THE vacuum tire expander, origirally introduced in 1925, proved so valuable in the succeeding 3 years that its use was extended to the production of more than 70% of the tires made in the United States. The vacuum expander has been continually improved and is now presented as a telescopic apparatus for expanding 6-inch tires and larger and also for tires having more than 6 plies. The telescopic action allows full expansion of the tire. Complete expansion prior to placing the tire in the mold assures uniformly adjusted cords in position to act to their fullest efficiency.

The operation of the expander is illustrated in the diagrammatic illustration. The green flat tire is placed on the bottom adapter ring *A* and the top of the expander *B* lowered to closed position by release of the foot valve. The 4-way hydraulic valve is then turned to position, which action admits water under the piston *C* to raise the ram *D*. When the top bead contacts with the upper adapter ring *E*, the vacuum line is opened. Exhausting the vacuum chamber *F* expands the tire and also lifts the ram with the bottom bead. The ram is stopped at the proper point for inserting the curing bag by turning the hydraulic valve to neutral position; this action stops the flow of water in or out from either side of the piston.

The airbag is inserted through the opening *G* in the top of the expander. The hydraulic valve is then again turned to admit water under the piston, further raising the ram and forcing the beads together, adjusting and centering the bag. At this time the vacuum line is closed and air admitted to the vacuum chamber. After a few seconds the hydraulic valve is turned to lower the ram when the expanded and bagged tire *H* is removed by raising the top of the expander. National Rubber Machinery Co., Akron, O.



National Vacuum Tire Expander

Rubber Industry in America

OHIO

Firestone Activities

A new low pressure tractor tire, developed by the Firestone Tire & Rubber Co., Akron, as a revolutionary advancement in power equipment for farms, makes the farm tractor an all-purpose machine doing much more work and adding varied uses. This tire, large in cross-section and diameter, carries only 12 pounds' air pressure and is designed to make the tractor stable and free from wobble or sideway, permitting the attachment of customary agricultural implements. Firestone engineers have pioneered a drop-center rim for use with these tires, which is the first adaptation of the drop-center principle for use in the large tire field.

Harvey S. Firestone, Sr., chairman of the Firestone board and pioneer in Akron polo, recently was presented with an honorary membership in the Akron Cavalry Club and its polo association.

William H. Funston, former manager, mechanical goods department, has been appointed general manager of the Firestone Tire & Rubber Co. of Canada, Ltd., to succeed the late Earl W. BeSaw.

The Firestone directorate elected as its newest member to fill the vacancy of Harris Creech, Frank H. Hobson, vice president of the Cleveland Trust Co.

Fred H. Palmer, Cleveland representative of the Brooklyn Color Works, Inc., 129-143 Cherry St., Brooklyn, N. Y., has moved from 850 Euclid Ave. to 750 Prospect Ave.

The B. F. Goodrich Co., Akron, held the first of its management dinners on October 13, at which H. E. Cook, general superintendent of the engineering division, was chairman. Vice President T. G. Graham discussed operations of Goodrich plants in foreign countries. Several hundred attended. P. J. Kelly, assistant to General Tire Sales Manager C. B. O'Connor, addressed the annual convention of The Direct Mail Association, New York, N. Y., October 7 on "Players vs. Scorekeepers."

President J. D. Tew declared, "Everyone connected with the rubber business knows that unless there are changes in the present tariff laws, many rubber articles now manufactured in this country will be replaced by those of foreign manufacture. It is estimated that not less than 25,000 American wage earners in certain lines of the rubber business may be deprived of work if a very radical change in the import duties on footwear, toys, etc., is not made in the very near future."

George Oenslager, Perkin Medalist

The 1933 award of the Perkin Medal for the most valuable work in applied chemistry has been made to George Oenslager, of The B. F. Goodrich Co. laboratories, Akron, O. This is one of the highest honors which can be bestowed upon an American chemist. It was conferred upon Dr. Oenslager in recognition of his pioneering work for the rubber industry on organic accelerators and the use of carbon black in rubber, as well as other chemical research developments.

The medalist, a native of Harrisburg, Pa., graduated from Harvard in 1894. After 12 years' service in the pulp and paper industry he went to Akron in May, 1905, to enter the Diamond Rubber Co. laboratories. His discovery of organic accelerators of vulcanization in 1906 ranks in importance with Goodyear's discovery of vulcanization by sulphur.

The Perkin medal is awarded by the American section of the Society of Chemical Industry, and is made to any chemist in the United States for work done at any time during his career.

The medal will be presented at a joint meeting of several scientific societies in New York, N. Y., in January.

W. O'Neil, president of The General Tire & Rubber Co., Akron, in response to queries following the statement of President Hoover that higher tariffs are necessary to protect American rubber manufacturers against foreign trade invasions, said "I can see no need at this time for increasing the tariff on automobile tires, as the present tariff, which is purely nominal, is sufficient. Although I am a protectionist, I do not like to see higher tariffs. I feel that the whole question of tariffs should be delegated to a permanent non-political commission with full power to act. I do not believe that tariffs are properly the subject of congressional action."

He cited the fact that the Hawley-Smoot act taxed French lace and that France retaliated with a 100% duty on automobiles and automobile parts. The automobile industry in this country protested, and the lace tariff was reduced: but the French levy on automobile imports still remains. The rubber footwear division of the rubber industry needs assistance, Mr. O'Neil believes, for foreign countries have invaded the rubber footwear market.

Cleveland Rubber, Inc., 4504-06 Prospect Ave., Cleveland, retails tires and tubes.

Goodyear Notes

Last month The Goodyear Tire & Rubber Co., Akron, put its general office workers on a 5-day week to provide more jobs. Salary reductions up to 10% also went into effect with the change, which will last until February 1, 1933.

W. H. Fleming has been appointed superintendent of Goodyear's California plant, succeeding L. B. Tompkinson, who will return to Akron. E. J. Thomas has been made local general superintendent, succeeding the late William Stephens, and R. P. Dinsmore is head of the research and development department.

Princes Frederick and Louis, grandsons of the former Kaiser Wilhelm of Germany, on their tour of American cities recently visited the Goodyear-Zeppelin dock. They were escorted around by Karl Arnstein, vice president and chief engineer of the Goodyear-Zeppelin Corp.

The recent James Gordon Bennett Cup Race for balloons at Basle, Switzerland, was won by the United States Navy entry. The *Goodyear No.* 8 with W. T. Van Orman and R. J. Blair aboard, from the Goodyear company, was second.

Akron Super Steel Castings, Inc., Akron, will soon begin operations, employing 40 men at once and 300 when at capacity. Executives include President C. F. Adamson, president of The Adamson Machine Co., Akron, and the Adamson Mfg. Co., E. Palestine; Vice President Norman E. Daub, former general sales manager of Atlantic Foundry Co., Akron; and Secretary-Treasurer C. B. Mitchella, general manager of The Adamson Machine Co. The foundry is under the supervision of Fred Hays and Harry Orr, formerly with the Atlantic Foundry Co. Although it has leased the steel foundry and equipment of The Adamson Machine Co., Akron Super Steel Castings, Inc., will operate independently of the former concern.

Superflex Tire Corp., E. Palestine, was recently formed to manufacture Superflex tires. Temporary officers are W. C. Green, president; Frederic S. Wilkins, secretary-treasurer; and Charles H. Moore, superintendent.

The Swan Rubber Co., Bucyrus, manufactures hose, tubing, juvenile tiring, pedal rubbers, molded brake lining, and various extruded articles. Swan officers are Mort G. Nussbaum, president and treasurer; Malcolm Strelitz, vice president; and Robert W. Priebe, secretary and purchasing agent.

MIDWEST

The Servus Rubber Co., Rock Island, Ill., manufactures canvas rubber soled and rubber footwear under the following trade names: "Properbilt," Playkicks, Serco, Servus, and Tomahawk. Executives include C. A. Hallgren, vice president and treasurer; J. H. Hauberg, vice president; and H. W. Litten, secretary. The company recently announced the appointment of C. E. Little as executive vice president. His former positions have been vice president in charge of sales, Converse Rubber Co.; president, Beacon Falls Rubber Shoe Co.; and in an executive sales capacity, United States Rubber Co.

Auburn Rubber Corp., manufacturer of rubber novelties, Auburn, Ind. The entire personnel of this organization is participating in an employes' group insurance program which includes life insurance and sickness and accident benefits. The Metropolitan Life Insurance Co., New York, N. Y., is underwriting the plan on a cooperative basis, with employer and employes sharing the cost. Individual amounts of life insurance range from $500 to $2,500, according to salary. In case of sickness or injury incurred off the job, weekly benefits of from $7.50 to $25 will be paid.

Phoenix Mfg. Co., Rubber Department, Joliet, Ill., with branches in Chicago, Ill., Catasauqua, Pa., and Montreal, Canada, lists among its products horse shoes, horse shoe pads, radiator hose, and door mats. Officers are E. N. Gosselin, president; A. W. Sexsmith and M. F. O'Connor, vice presidents; R. E. Meyer, secretary-treasurer; and George C. Siebert, manager of the Rubber Department.

Crescent Specialty Co., 10140-44 Merchandise Mart, 222 N. Bank Dr., Chicago, Ill., manufactures Crescent Comfy sanitary goods, crib sheets, rubber sheeting and aprons, etc. Executives are M. B. Whitehead, president and purchasing agent; L. A. Whitehead, vice president; and A. R. Whitehead, secretary-treasurer.

Van Cleef Bros., Woodlawn Ave., 77th to 78th Sts., Chicago, Ill., makes Dutch Brand automotive rubber and chemical products, Vanitex rubberized fabrics, and "Tite-On" rubber shoe soles. The firm consists of a partnership of Noah, Felix, Paul, and Maxime Van Cleef. Charles Wonder is purchasing agent.

Bauer & Black, Division of The Kendall Co., 2500 S. Dearborn St., Chicago, Ill., with branches at 104 E. 25th St., New York, N. Y., and 96 Spadina Ave., Toronto, Canada, among its rubber products includes adhesives, druggists' sundries, and sanitary goods. Company officials are R. A. Whidden, president; H. L. Wells, vice president and treasurer; C. K. Perkins, vice president; J. A. Valentine, secretary; and R. D. Barnes, purchasing agent.

Rubber Section, N. S. C.

The following Executive Committee of the Rubber Section, N. S. C., was elected at the Twenty-First Annual Safety Congress held October 3 to 7, 1932, at Washington, D. C.

General Chairman, Charles F. Smith, U. S. Rubber Reclaiming Co., Inc., Buffalo, N. Y.

Vice Chairman (in charge of program), H. W. Low, Miller Rubber Products Co., Inc., Akron, O.; Secretary, R. A. Bullock, Corduroy Rubber Co., Grand Rapids, Mich.

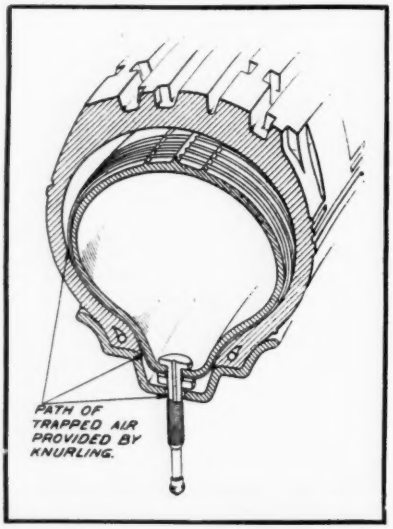
Poster Committee Chairman, Roland Kastell, United States Rubber Co., Passaic, N. J.; Membership Committee Chairman, E. W. Beck, United States Rubber Co., New York, N. Y.; Publicity Committee Chairman, W. L. Schneider, The B. F. Goodrich Co., Akron; Statistics Committee Chairman, R. W. Morris, The Firestone Tire & Rubber Co., Akron; Engineering Committee Chairman, James Q. Lee, India Tire & Rubber Co., Akron; Health Committee Chairman, Dr. J. Newton Shirley, Watertown, Mass.; Slides and Safety Kinks Committee Chairman, A. M. Dietz, Pennsylvania Rubber Co., Jeannette, Pa.

News-Letter Editor, B. F. Gerpheide, The Goodyear Tire & Rubber Co., Akron; Members at Large, J. T. Kidney, The Goodyear Tire & Rubber Co., Akron, and M. A. Quirk, United States Rubber Co., Detroit, Mich.

Vented Inner Tube

The trapped air problem has always existed to an unknown extent, but it was not recognized as a definite cause of tire failure until the drop-center rim became popular. This type of rim, being of one piece construction and having no splits or loose side flanges, is likely to form a continuous airtight seal offering no outlet for the air except through the valve hole. Consequently the air frequently trapped between casing and tube in mounting, and seeking an outlet under pressure of the inner tube, often works through the carcass producing blisters on the outside of the tire or separation under the sidewall or tread. The remedy, heretofore, was to make a very small hole in the sidewall through which the air might escape.

A better solution of the problem is now available by the development of a vented tube. This tube is knurled or corrugated to form vents so that the trapped air at any point of the casing is automatically led out through the valve hole during the first few revolutions of the wheel. The illustration shows a tire section and vented tube mounted on a drop-center rim, and the path for escape of the trapped air is indicated. Exhaustive laboratory and road tests indicate that the vented tube has satisfactorily solved the trapped air problem, permitting the casing to deliver its full life expectancy and to retain its original appearance.



U. S. Rubber Co.'s Vented Inner Tube

W. H. Salisbury & Co., Inc., 401-421 N. Morgan St., Chicago, Ill., manufactures molded rubber goods, rubber tile flooring, and linemen's rubber protective devices, and also jobs mechanical rubber goods. Officers include M. B. Salisbury, president and treasurer; T. R. Claffy, vice president; and J. C. Kettner, secretary and purchasing agent.

Judsen Rubber Works, Inc., 4101-11 W. Kinzie St., Chicago, Ill., lists among its products Sanshu beach sandals, dog balls and bones, pads, mats, curry combs, arch supports, and a complete line of general molded rubber products. Executives are Carl A. Judsen, president; Carl Judsen, Jr., vice president and purchasing agent; and Leroy Goldstone, secretary-treasurer.

Diamond Braiding Mills, Chicago Heights, Ill., manufactures rubber covered insulated wire and molded rubber products. Officers are Nathan Seifer, president; Harold Gordon, vice president; R. H. Gordon, secretary; and C. P. Berolzheimer, treasurer and purchasing agent.

David C. Brown Co., 542 Wayne St., Detroit, Mich., specializes in rubber and composition products to measure. The company maintains a branch in the Walker Power Bldg., Walkerville, Ont. Canada.

Detroit Rubber Products, Inc., has moved to 4449 Woodward Ave., Detroit, Mich.

Golf Ball, Inc., 1547-53 W. 51st St., Chicago, Ill., manufactures golf balls under the following names: Universal, Collegian, Longflite, Red Fox, Long Shot, The Brute, Flying Scot, and Pro-Cougar. Company executives include Erwin Huebsch, president and treasurer; M. M. Huebsch, vice president; Henry A. Hagen, secretary; and Wm. Pearce, purchasing agent.

EASTERN AND SOUTHERN

E. I. du Pont de Nemours & Co., Inc., Rubber Chemicals Division, Wilmington, Del., announces a complete line of chemicals and colors for latex compounding. The list of these materials includes the wetting agent Aquarex, zinc oxide, sulphur, and color pastes in colloidal form; also Neozone L and dispersed Antox Tepidone and Accelerator 552, emulsified Heliozone, and organic mercurials for prevention of fungus and bacterial growth.

American Cyanamid & Chemical Corp., 535 Fifth Ave., New York, N. Y., and its subsidiary corporations held their Fall Golf Outing and Field Day on October 12 at Briarcliff Lodge. Prizes were given winners of the various sports and aquatic events. District sales managers of the company who were in New York at the time for their sales meeting also attended the outing.

George D. Kratz, consulting chemist and specialist in latex processes, has combined his offices and laboratory at 50 Church St., New York, N. Y. Telephone COrtland 7—2290.

Life-Tex Corp., Greensboro, N. C., is the sole distributer of Life-Tex rubber thread compounded from pure rubber latex under the direction of the American Anode Co. Lyndon W. Joyce is prominent in the organization.

Smith Chemical & Color Co., Inc., 28 Moore St., New York, N. Y., importer, exporter, and manufacturer of chemicals, colors, and pigment fillers, has announced that J. P. McGreevy, for many years with the Color Division of the Sherwin-Williams Co., has joined the Smithko sales department. Company officers are Casper Smith, president; J. Robert Smith, vice president; and M. R. Smith, secretary.

Paul Uhlich & Co., Inc., 157 Chambers St., New York, N. Y., manufacturer of dry colors, maintains a research laboratory for the benefit of its customers. F. V. Larkin is manager of the rubber service department.

The Tenth National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York, N. Y., December 5 to 10, 1932. Two years have elapsed since the last big exposition, and in the interim many lines have been completely revamped and research has been responsible for many new designs and devices to meet the demands of changed economic conditions. This exposition will offer the first opportunity to show these to engineers collectively and to explain the improvements. To date, 305 firms have signed up.

Webster N. Jones, formerly with The B. F. Goodrich Co., Akron, O., and now head of the school of engineering at Carnegie Institute of Technology, Pittsburgh, Pa., recently gave an address on research over Station KDKA, Pittsburgh.

Blank-Stoller, Inc.

B. Brittain Wilson

New Business Manager of "India Rubber World"

The publishers of INDIA RUBBER WORLD are proud to introduce to you the new business manager of the magazine, B. Brittain Wilson, whose 33 years with trade journals make him a fitting executive for this paper. "Britt," as he is hailed by his friends, began his successful career as an office boy for Edward Lyman Bill, father of the present publishers. In 1904 he left this employer for C. A. Cawthra & Co., a competitor, but the Bill organization won him back, for keeps this time, in 1907. His rise on their staff, the result of his recognized ability, was rapid.

Mr. Wilson was born in Virginia. His family came to New York, where he went to the public schools. He had to find work before he could complete his formal education; so this ambitious youth later attended night classes and matriculated at the College of the City of New York, taking mechanical and chemistry courses.

Mr. Wilson is quite active in fraternal organizations and holds memberships in various divisions of the Masonic Order.

Now for the man himself. You'll like him. He is a kindly, genial gentleman. His sense of humor is a treat, and his hearty laugh is frequently heard. He enjoys a good book too. And does he smoke! Pipe, cigar, cigarette—it makes no difference to him; he's always puffing away.

Rubber Exchange Election

Charles Slaughter was elected president of the Rubber Exchange of New York, Inc., on October 18, in the annual election of officers for 1932-1933. Mr. Slaughter, a member of Slaughter, Horne & Co., active in crude rubber, coffee, sugar, and other commodities, succeeds John L. Julian, whose second term as head of the Exchange expired October 20. William A. Overton and J. Chester Cuppia were reelected vice president and treasurer, respectively.

The following were reelected to the board of governors: Harry A. Astlett, of H. A. Astlett & Co.; Harold L. Bache, of J. S. Bache & Co.; Robert Badenhop, of R. Badenhop Corp.; William E. Bruyn, of Littlejohn & Co., Inc.; James T. Bryan, of Logan & Bryan; John L. Julian, of Fenner, Beane & Ungerleider; Marcus Rothschild, of M. Rothschild & Co., Inc.; Samuel Swerling, of Swerling Trading Corp.; and Charles T. Wilson, of C. T. Wilson Co., Inc. The following were elected new governors: Robert L. Baird, associated with H. Hentz & Co.; Otto Meyer, of The Meyer & Brown Corp.; and Lawrence G. Odell, of Odell & Sons.

The American Society of Mechanical Engineers will hold its annual meeting in New York, N. Y., December 5-9.

Prof. George L. Clark of the University of Illinois, will be awarded the Grasselli Medal at a meeting of the American Section of the Society of Chemical Industry and other cooperating societies, to be held in the Westinghouse Auditorium, Grand Central Palace, New York, November 4, 1932. In addition to Professor Clark's paper on "A Decade of Applied X-Ray Research," Roscoe H. Gerke of the United States Rubber Co., will outline the accomplishments of the medallist. Albert E. Marshall, consulting chemical engineer, will make the presentation.

The Fourteenth Exposition of Chemical Industries is now definitely scheduled for the week of December 4, 1933, at Grand Central Palace, New York, N. Y., according to a recent announcement by Manager Charles F. Roth, who is vice president of the International Exposition Co., which has organized and directed the presentation of the Chemical Exposition since the first one was held in New York in 1915. Already plans for the next show, designated as the Fourteenth Exposition of Chemical Industries, have been under way for some months, in line with previous plans to hold the event early in 1933.

H. M. Henderson & Co., 66 Beaver St., New York, N. Y., is a crude rubber broker.

Vulcanized Rubber Co., Morrisville, Pa., has appointed as assistant superintendent of the plant, H. J. Beynon, formerly with the Aetna Rubber Co., Cleveland, and Ashtabula, both in O., and the Dryden Rubber Co., Chicago, Ill. The Vulcanized company is installing new equipment including new comb presses. The concern experienced considerable improvement in business.

The Purchasing Agents Association of New York, 1 Bridge Plaza, Long Island City, N. Y., will hold an exhibition of members' products in the Hotel Pennsylvania, New York, N. Y., on November 15, 1932.

The United States Tariff Commission, Washington, D. C., on October 14 ordered an investigation for the purposes of Section 336 of the Tariff Act of 1930, looking toward a change in the rate of duty on rubber soled footwear with fabric uppers and waterproof rubber footwear. These items are dutiable at 35% and 25%, respectively. The imports in recent months of rubber soled footwear with fabric uppers have come principally from Japan; while imports of waterproof rubber footwear come principally from Japan and Czechoslovakia. An application requesting an increase in the rate of duty on these products was filed with the Tariff Commission in August of this year. Members of The Rubber Manufacturers Association, Footwear Division, were prominent in appealing to the government for such action.

Rodale Mfg. Co., Inc., with factory at Doylestown and principal office at Emaus, both in Pa., manufactures plumbing goods such as force cups, basin plugs, tank balls, etc.; electrical goods such as rubber attachment plugs; and other hardware and household specialties. Company officers are J. I. Rodale, president and purchasing agent; Joseph Rodale, vice president and treasurer; and R. S. Stoneback, secretary.

Romel Rabrics, Inc., 444-12th St., Brooklyn, N. Y., manufactures leatherette, suede, impregnated cloths, and rubberized fabrics for all trades. H. S. Rochelle is president and purchasing agent, and M. Fishman, vice president.

NEW ENGLAND

The Priest-Gustafson Tire Co., 993 Main St., Fitchburg, Mass., recently organized with a capital of 300 shares, common stock, no par. The president is Aldrich A. Gustafson; treasurer, Charles E. Priest; and secretary, Marian L. Priest.

Gould Golf Ball Co., 429 Washington St., Lynn, Mass., manufactures golf balls and repaints and reconditions old balls. This company was formerly the Blu-J Golf Ball Co., originally of Florida and lately of Lynn, and was sold by Charles R. Sibley, of Sibley-Pym Corp., golf ball machinery manufacturer, Lynn, to Harold I. Gould.

The Fisk Rubber Co. reorganization committee, with Orrin G. Wood as chairman, on October 18 announced operative the reorganization plan and agreement of August 29.

Stowe-Woodward, Inc., Newton Upper Falls, Mass., announces its 1933 line of golf balls, now ready, as follows: No. 114 paintless Dorchester with a paintless cover and a center core, of live rubber, only 5/8-inch in diameter; No. 10 Dorchester of the same construction as No. 114 except that it has the usual cover with painted finish; No. 374-E paintless Champion with a one-inch center core; and No. 61 Champion.

Davidson Rubber Co., 50 Brighton St., Charlestown, Mass., manufactures a complete line of druggists' sundries, bathing caps, shoes, sandals, and belts, and sponge rubber. Executives include L. P. Paul, president and treasurer; E. J. Casey, vice president; M. L. Pettengill, secretary; and H. L. Miller, purchasing agent.

Naugatuck Chemical Co., Naugatuck, Conn., will erect a 60- by 60-foot addition to its laboratory.

PACIFIC COAST

E. I. du Pont de Nemours & Co., Inc., 601 Third St., San Francisco, Calif., is the new Pacific Coast headquarters of the company under the management of Walter J. Sohlinger. The following company units will be housed there: du Pont Rayon Co., du Pont Viscoloid Co., du Pont Cellophane Co., Inc., Totine Shade Cloth department, National Ammonia Co., and Roessler & Hasslacher Chemical Co.

Desser Tire Products, 6211 Cottage St., Huntington Park, Calif., announces the appointment as sales manager of P. F. Mekeal, formerly with the Philadelphia Rubber Works Co., Akron, O. During September the Desser company experienced increased activity in rebuilt tires, scrap rubber, and rubber by-products, with interest shown on the part of the buyer. Increased orders in the rebuilding department necessitated 18-hour-a-day operations against a previous 9 hours; consequently more men were added to the payroll. The Desser scrap rubber department showed increased sales volume over that for August, especially for export; reclaimers, however, are only fairly active, and the market continues aimless.

NEW JERSEY

The majority of rubber companies in New Jersey report some gain during the past month, including radio parts and combs in the hard rubber plants, and especially hose, belting, and packing. Production of shoes, heels and soles remains good, with the output of tires and tubes unchanged.

The New Jersey Court of Errors and Appeals has affirmed the award of a $30,000 judgment to Israel H. Albert, trading as L. Albert & Son, Trenton, against the Ford Motor Co., of Michigan. The action involved a contract for the purchase of rubber machinery, mills, and presses. Mr. Albert alleged that the Ford company breached the agreement by failing to deliver all but one of the articles bought, and sued to recover what would have been his profit on the transaction through resale.

Thermoid Company, Trenton, reports a substantial gain in business. Vice President F. Robert Lee was on a lengthy trip through the West.

Joseph Stokes Rubber Co., Trenton, finds business better both at its Trenton and Canadian plants, with a decided improvement over the previous month.

Isidore Richmond, Trenton, agent for the Pennsylvania Rubber Co., has been awarded the contract for pneumatic tires and tubes required for state-owned automobiles during the current fiscal year. The order approximates $35,000. For the first time this year the State received bids on a unit price basis. The average figure for tires submitted by Mr. Richmond was $9.81 and for tubes, $1.21. A mileage of 35,000 was guaranteed. The contract for solid tires, the total of which is $4,000, went to the Kelly-Springfield Tire Co., New York, N. Y. Their prices ranged from $12.06 to $104.69.

James P. Flynn, general manager of the Puritan Rubber Co., Trenton, is on a 2-month business trip through the West and along the Pacific Coast. Mr. Flynn makes such trips twice yearly.

Luzerne Rubber Co., Trenton, finds hard rubber business improving.

Murray Rubber Co., Trenton, reports that business increased during October over the previous month. The company is meeting with success in merchandising its own batteries.

Pocono Rubber Cloth Co., Trenton, continues its good business and the same number of employes.

Pierce-Roberts Rubber Co., Trenton, recently placed a night shift at work in the press room. The company has received many new orders.

Lambertville Rubber Co., Lambertville, experiencing a revival in business with orders coming in for fall and winter supplies for rubber boots and other goods, increased its working hours.

Thiokol Corp., Yardville, is perfecting a jacket which will mark a radical departure in cable manufacturing, according to General Cable Co., New York, N. Y., which holds a license agreement with the Thiokol firm. A cable soon will be marketed for electrical purposes and power lines, the jacket of which has all the advantages of rubber, but is far superior to it in resistance to chemical action.

Essex Rubber Co., Trenton, experienced increased business, and officials are optimistic over the future.

Surplus Trading Corp., dealer in secondhand machinery, moved from 102 Parkhurst St., Newark, to 411 Lafayette St., New York, N. Y.

Sani-Safe Mfg. Co., West Orange, purchased a 2-story factory building, 50 by 125 feet, at 60-62 Standish Ave., to be used for manufacturing fabricated rubber mats.

Mercer Rubber Co., Hamilton Square, states business is unchanged. Treasurer I. Ely Reed was on a business trip through the South.

Whitehead Bros. Rubber Co., Trenton, announces that business has been good during the fall with prospects for a good winter trade. The rubber shoe department is receiving orders for winter delivery.

OBITUARY

Woman Executive

SUDDENLY on October 6 died Mrs. Laura E. Hankins, secretary-treasurer and general manager of The Hankins Rubber Co., Massillon, O. Mrs. Hankins was born in Navarre, O., on February 16, 1874, and attended the local grade and high schools and a business college in Massillon. On January 3, 1922, she was graduated from the International School of Accounting, Chicago, Ill.

That the deceased was a clever business woman may be seen from the several responsible positions she had. From 1910 to 1913 she was secretary-treasurer of The Reality Rubber Co., Massillon. She held a similar office with The Massillon Rubber Co. from 1913 to 1928, when she resigned from that firm to organize the Hankins company, becoming its secretary-treasurer. Her husband, S. Bert Hankins, is president. The earlier years of her business career were devoted to the wholesale and retail news business.

Mrs. Hankins belonged to the Eastern Star and White Shrine and the Woman's Club of Massillon.

Laura E. Hankins

George P. Thomas

LAST month funeral services were held in Baltimore, Md., for George P. Thomas, long in the wholesale and retail rubber goods trade as head of the firm now known as the George P. Thomas Rubber Co., 107 S. Hanover St., Baltimore. He started in business in 1887 and retired 3 years ago.

Ohio Rubber Co. Head

ON October 14, Henry Hallock, president of the Ohio Rubber Co., Willoughby, O., was found dead in his garage in Shaker Heights, Cleveland, O. He was born in Maine 68 years ago. Mr. Hallock 38 years ago went to Cleveland, where for many years he acted as a crude rubber broker. Six years ago he acquired the plant of the Buckeye Rubber Co. and renamed it the Ohio Rubber Co.

Goodyear Superintendent

THE Goodyear flags throughout the world were at half mast last month in memoriam for William Stephens, general superintendent of The Goodyear Tire & Rubber Co., Akron, O., who died on October 14 following a 2-month illness. He had been with Goodyear since January 8, 1901. His ability to handle his job as well as the men under him won for him many promotions. In 1910 he was made foreman of the tire and tube room. He became division superintendent in 1912, assistant superintendent in 1913, production superintendent in 1915, and general superintendent in 1920. He was also responsible for many innovations in the Goodyear organization such as labor training, the production control system, etc. To the army of Goodyear workers, no matter who succeeds him, there will never be another boss like "Steve."

He was born in Akron, August 23, 1876. He attended the local schools, but in his youth formal education had no appeal for him; so he spent his time playing football and baseball and yielding to wanderlust. His love of all sports never dimmed, not even in his last years. He belonged also to the Knights Templar.

Private funeral services were held at his home in Akron on October 16, followed by services at Grace Reformed Church. Burial was at Rose Hill Cemetery. Goodyear officials acted as pall bearers for their departed friend, and a host of other friends, relatives, and associates also paid their last respects to "Steve."

He leaves behind his widow, his mother, a stepdaughter, and an adopted daughter.

William Stephens

Former Rubber Man

A STROKE of apoplexy caused the death in a Cleveland hospital on September 28 of Morris E. Mason, former president of the Mohawk Rubber Co., and of The Star Rubber Co., both of Akron, O. He began his long career with the rubber industry in March, 1897, as a salesman in Chicago for Morgan & Wright Co., now part of the United States Rubber Co. During his 14 years with Morgan & Wright, Mr. Mason served successively as manager of the bicycle, carriage, and truck tire departments. From 1911 to 1913 he was in Chicago as assistant to the central district manager of the United States Tire Co.

In 1913 he became one of the organizers of the Mohawk Rubber Co. In his 11 years with that organization he served as sales manager, secretary, vice president, president, director, and member of the executive board. Mr. Mason in the early part of 1927 was elected president, director, and general manager of The Star Rubber Co., which positions he held for a time.

The deceased is survived by his widow and a daughter.

Tinius Olsen

TINIUS OLSEN, founder of the Tinius Olsen Testing Machine Co., Philadelphia, Pa., and father of Thornton Y. Olsen, the present head of the concern, died October 20 at the home of his son near Philadelphia.

Noted Industrialist

FOLLOWING a long illness A. Polhemus Cobb, senior vice president of The New Jersey Zinc Co., 160 Front St., New York, N. Y., died on October 6 at his home in Tarrytown, N. Y. He had been associated with the company for a half century, starting there when a lad of 18. He was made secretary in 1894 and a vice president in 1912. He was also one of the founders and a president of the American Zinc Institute, being a director and a member of the executive committee at the time of his death.

Mr. Cobb was born in Hopewell, N. Y., about 68 years ago. When a young man he moved to Flushing, L. I., and there attended Flushing Institute. He is well known for his philanthropic work and was quite active in many civic and fraternal organizations. He was also connected with several other industrial concerns, all of whom will miss him keenly.

He leaves his widow, a son, and 2 daughters. Funeral services took place on October 8 in the First Reformed Church of Tarrytown.

G. B. Pirelli

GIOVANNI B. PIRELLI, founder of the Pirelli rubber industry and father of Alberto Pirelli, present head of the business, died in Milan, Italy, October 20. His obituary will be published in the next issue.

Goodyear Employe

OSCAR RABER, for 18 years with The Goodyear Tire & Rubber Co., Akron, O., dropped dead on the street on October 2. He was born January 20, 1873, in Summit Co., O., where he later taught school. He also did special work for the United States Government in the railway mail department before joining Goodyear. Mr. Raber belonged to the Masons, I. O. O. F. Lodge, Fifty-Year Club, and Historical and Archeological societies.

Surviving are his widow, a son, 2 daughters, 2 brothers, and 2 sisters. Burial was in Crown Hill Cemetery.

Rim Inventor

ON OCTOBER 10 at Flushing Hospital died Louis Henry Perlman, inventor and president of the Perlman Rim Corp. when it was absorbed by General Motors about 10 years ago, which was also the time of his retirement from business.

He was born in Kovno, Russia, about 70 years ago and was brought to the United States in 1864. He attended the College of the City of New York.

In 1880 he organized the Pictorial Associated Press and remained in the publishing business until 1905, when the automobile industry won him over. After a struggle of nearly a decade Mr. Perlman's claims regarding his invention of a demountable automobile rim were finally allowed by the United States Patent Office.

Surviving are a son and a daughter. Funeral services were held on October 12 at the Free Synagogue, Flushing, L. I., N. Y. Interment was in Union Fields Cemetery.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

No.	Inquiry
1524	Supplier of 90% and 100% benzol.
1525	Manufacturer of rubber cement tube filling machines.
1526	Manufacturer of toy balloons.
1527	Manufacturer of weather balloons.
1528	Manufacturer of dipped goods.
1529	Manufacturer of rubber soles applied by cement to leather shoes.
1530	Foreign inquiry for manufacturer of garden hose.
1531	Manufacturer of a heel washer applying machine.
1532	Manufacturer of rubber bladders for footballs.
1533	Manufacturer of rubber sweat shirt.
1534	Manufacturer of Para cloth.
1535	Manufacturer of golf ball centers.
1536	Manufacturer of machine for fitting and attaching solid rubber tires to caster wheels on hospital trucks.

EDITOR'S BOOK TABLE

New Publications

"Balloons and Rubber Balls, Dipped and Molded Rubber Goods, Jobbers' and Dealers' Price List." List No. 121. The Barr Rubber Products Co., Sandusky, O. This colorful 32-page booklet illustrates and describes the Barr products covered by the title. Price lists are given as well as views of the company's offices and factory.

"The Rubber Exchange of New York, Inc." Seventh Annual Report, 1932. In this report John L. Julian, retiring president, summarizes the activities of the Exchange for the fiscal year from September 1, 1931 to August 31, 1932. Total contracts of all classes in trading were 26,157 amounting to 258,202½ tons. Deliveries totaled 9,825 tons. The present membership of the Exchange numbers 255.

"1932 Supplement to Book of A.S.T.M. Standards." American Society for Testing Materials, 1315 Spruce St., Philadelphia, Pa. This pamphlet comprises the second supplement to the 1930 book of standards and contains 7 standards adopted or revised by letter ballot of the Society on September 1, 1932. In the present supplement 2 standards relate to metals and 5 relate to non-metallic materials. In the latter group will be found Standard Methods of Chemical Analysis of Rubber Products, and Standard Methods of Physical Testing of Rubber Products.

"Methods of Test Relating to Electrical Insulating Materials." Report of Committee D-9 on Electrical Insulating Materials, 1932. American Society for Testing Materials, Philadelphia, Pa. This publication contains the extensive 1932 report of A.S.T.M. Committee D-9 on Electrical Insulating Materials and all the standard methods of testing insulating materials that have been developed by the Society. There are 29 standards included, of which 18 are test methods promulgated by Committee D-9, 10 are specifications covering rubber and textile products used in the electrical industry, and one is a method of testing the insulating qualities of slate. The report of Committee D-9 outlines the more than 25 research projects currently before the several subcommittees and gives progress reports. This committee is a very active one and is doing a great deal of important work on many materials used for electrical insulation.

Book Review

"Chemical Engineering Catalog." Seventeenth Annual Ed., 1932. Published by The Chemical Catalog Co., Inc., New York, N. Y. Cloth, 847 pages, 9 by 12 inches. Illustrated.

The latest edition of this standard reference work contains authoritative data regarding the products of several hundred American concerns manufacturing engineering equipment and supplies for the chemical and related industries including rubber. The volume comprises the following sections: Alphabetical Index, Trade Name Index, Classified Index of Equipment and Supplies, Classified Index of Raw Materials Section, and Technical and Scientific Book Section.

The Vanderbilt News. R. T. Vanderbilt Co., Inc., 230 Park Ave., New York, N. Y. The September-October, 1932, issue of this publication discusses the following topics of rubber compounding interest: Kalite as an activator of vulcanization; commercial superaging; high grade stationers' bands with Altax; longer life for uncured doubling compounds; curing rubber without zinc oxide; and discoloration of white lacquer by rubber.

"Huggenberger Tensometers. A Lever Type Strain Gauge." Baldwin-Southwark Corp., Southwark Division, Philadelphia, Pa. In this fully illustrated descriptive Bulletin No. 37 the fundamentals of design and construction of Huggenberger tensometers are recorded, also fixing devices and other accessories.

It should, perhaps, be explained that the Huggenberger tensometer is a multiplying lever device for measuring the strain in a specimen under load and thereby the stress in the specimen since there is a very definite relation between stress and strain known as Young's modulus or the modulus of elasticity.

"Firestone Boots, All Rubber Pacs, Oregons, Lumbermen's Overs, and Heavy Rubbers," and **"Firestone Gaiters and Light Rubbers."** Firestone Footwear Co., Hudson, Mass. These 2 catalogs give illustrated descriptions of their respective products as well as other information of interest to dealers. Order blanks are inserted for their convenience.

"Bristol's Humidigraph." The Bristol Co., Waterbury, Conn. This broadside, designated as Bulletin 413, illustrates and describes a new direct reading relative humidity recorder. This instrument is portable; this fact greatly enhances its practical value in many lines of industrial and numerous other applications.

Dividends Declared

Company	Stock	Rate	Payable	Stock of Record
Corduroy Rubber Co.	$8 Pfd.	$0.25	Dec. 15	Nov. 15
Faultless Rubber Co.	Com.	$0.50 q.	Jan. 1	Dec. 15
Norwalk Tire & Rubber Co.	Pfd.	$0.87½ q.	Jan. 1	Dec. 22
Pennsylvania Rubber Co. 6%	1st Pfd.	$1.50 q.	Oct. 1	Sept. 30
Plymouth Rubber Co.	Pfd.	$1.75 q.	Oct. 15	.....

Rubber Industry in Europe

GREAT BRITAIN

Shoe and Leather Fair

As usual a large number of rubber firms exhibited their specialties in the footwear line at the International Shoe and Leather Fair, which was held in London on October 3, 1932.

The Dunlop Rubber Co. displayed among other items the new Bent-Knee fishing boot and special seamless Wellingtons for women and children. These Wellingtons, made by a new process, are intended for the better class of trade.

At the Gutta Percha & Rubber Co.'s stand a woman's smart overshoe with a high vamp, embossed surface, and a buckle, attracted attention. So did the new Kick-Start guard for motorcyclists. It fits under the instep and at the side of shoes and fasten with an ankle-strap. The Wadagard Pullover boot has this Kick-Start pad built in.

The I. T. S. Rubber Co. and the Harboro Rubber Co. both showed soling in various attractive colors. The Miner Rubber Co., Canada, through its agent, T. G. Wigley & Co., featured one piece white fishing boots which appear to be particularly popular with deep-sea fishermen in this country.

Press molded, hot vulcanized canvas shoes reenforced with spring steel shanks to maintain the shape, were sent by the Hevea Fabrieken, Heveadorp, Holland. The display of Williams, Ltd., Hounslow, included dyes and stains in all shades, for rubber.

Plastic Flooring

A variety of interesting applications of rubber was shown at the Building Exhibition at Olympia, chief among which was Bond plastic flooring, displayed by the Rubber Growers' Association. The new flooring is made from concentrated latex to which suitable ingredients have been added and which has been hydrated to form a stiff paste. To form terrazzo or mosaic floors, for instance, the paste while still plastic is spread on the surface to be covered and in this are embedded small pieces of variously colored rubber cut from vulcanized sheet and arranged to form any pattern desired. The composition hardens within 24 hours at ordinary atmospheric temperature, and the surface is then polished smooth. Marble chippings, colored stones, etc., as used in ordinary cement terrazzo work, can be set in the plastic rubber compound instead of the vulcanized rubber pieces. The advantages of a rubber bedding are that it is warmer and more noiseless than cement; besides it is resilient, thus preventing that cracking which is the chief drawback of cement terrazzo and mosaic floors. Bond plastic flooring, it is claimed, can be laid on any type of sub-floor and will stay in position without the usual adhesives employed for ordinary rubber floors. A number of restaurants, hotels, and clubs in London already have these floors. The process is patented in England and abroad; the North British Rubber Co. has the sole right to grant licenses to exploit the invention in England.

Rubber Linoleum

The extensive scale on which rubber flooring is being used by big corporations, steamship companies, moving picture houses, etc., has at last called the attention of manufacturers of ordinary linoleum to its possibilities. An important linoleum combine has started its own works, the Runnymede Rubber Co., Ltd., to make rubber linoleum; and the product, which was also shown at the above exhibition, is most attractive. At present it comes only in marble tile effects, but the colorings are exceptionally fine, and the surface is beautifully finished. It has the further advantage that it can be easily laid.

Other articles attracting attention at the exhibition included rubber jointings for gas and water mains, pneumatic tired wheel barrows of all sizes, rubber paints, and rubber roofing composition.

Company Notes

The back and bristles of the new all-rubber brush of Premo Brushes, Ltd., Petersfield, Hants., are molded from a solid piece of rubber all in one. These brushes are obtainable in 7 attractive colors and 2 styles, nail brushes and bath brushes. Long life and a gentle massaging effect in use are among the advantages claimed for them.

The Bata company is sending 30 English boys to the factory in Zlin, Czechoslovakia, for 3 years to study mass production of footwear. The boys are to form the special staff of the Bata factory planned for East Tilbury.

Jetco, a rubberized paper lining for stiffening thin leather, recently has been introduced to compete with the American product. It is made in 4 colors, natural, grey, brown, and black, in rolls of 50 yards long by 36 inches wide.

The London *Rubber Age* learns that the Premier Steel Tube Co., Ltd., London, now represents the Mannesmannrohren-Werke, Dusseldorf, holding the sole rights in England for the application of Herolith and Tornesit coating to tubes and tubular products.

The India Tire & Rubber Co. (Great Britain), Ltd., Inchinnan, is marketing a new low-priced tire for replacement purposes.

Aston Technical College

To the regular evening classes of the Department of Rubber Technology at Aston Technical College, Birmingham, is to be added a part-time day course suitable for employes in the rubber industry. On 2 half days a week and one evening employes specially selected by firms will receive instruction in rubber technology, properties of rubber materials, engineering science, mathematics, and English. Rubber production, methods of handling, and factory processes will be taken up the first year in rubber technology. In the engineering science classes the foundations will be laid for the further study of the properties of rubber materials from the physical point of view. The history of the rubber industry, economic geography, and oral English are included in the English course. Oral English is important as frequently an otherwise qualified man fails to obtain a responsible position because he is unable to express himself properly in his own language.

The full course will cover 2 years and is not restricted to members of the rubber industry.

Soviet Rubber Factories

The first Soviet factory for synthetic rubber at Jaroslawl started operations at the end of July, 1932. Latest reports state that a second factory of this kind established at Woronesh is now partly working too and was scheduled to make the first deliveries of synthetic rubber in the latter part of September. A third factory will shortly open at Efremov, while a fourth, in construction at Kazan, is expected to start working in the spring of 1933. The construction of 2 more factories for synthetic rubber is contemplated in the near future at Krasnodar and Kremenschug. The Soviet expects to obtain sufficient rubber from these factories to supply the needs of the local automobile industry. The rubber factories at Leningrad are said to have already begun to use this rubber. It seems that 80 tires have been made with it and that 6,000 pairs of rubber shoes have been produced from compounds containing 20% of synthetic rubber.

Meantime natural rubber must still be used for all other goods, also for the 75,000,000 pairs of rubber soles which it is expected will be produced annually at the sole factory at Jaroslawl when it is completed. At present the output of a recently completed section, which now operates, is 6,500,000 pairs for the last quarter of 1932.

GERMANY

Fighting Unemployment

The Continental Gummi-Werke A. G., announces that in order to help the government in its effort to fight unemployment it will reduce the working period and enlarge its production program, although this move entails the risk of carrying larger stocks, so as to be able to employ 500 to 1,000 additional workers. The Deka Pneumatik G. m. b. H., a subsidiary of the Deutsche Kabelwerke A. G., plans to arrange its schedule to give work to 100 more persons.

To stimulate employment the German Government proposes to subsidize firms that employ more workers during a quarter between October, 1932, and September, 1933, than they did on an average in June, July, and August, 1932, by granting them taxation credit certificates. These certificates allow 100 marks per worker per quarter, and can be used to pay taxes during 1934-1938. Those taking advantage of the government offer may also reduce the wages below the regular rates, but reductions are only to be made on the wages for the last 10 hours of a 40-hour week.

Thread Prices Maintained

The Kolnische Gummi-faden-Fabrik vormals Ferd. Kohlstadt & Co., Koln-Deutz, states in its annual report that, thanks to the activities of the International Rubber Thread Association, founded in April, 1931, the alarming downward trend of the prices for rubber thread has been stemmed. However, the full effect of the price regulations has not yet been felt since a number of rubber thread manufacturers have had to fill previous orders at the ruinous prices agreed upon at the time.

The above firm itself noted a decline in sales both as to quantity and value, the decrease in the latter respect amounting to 20% when compared with 1930 and to 39% when compared with 1929. In spite of this condition the company booked net profits of 108,016 marks against a loss of 420,740 marks carried forward at the beginning of 1931, and hopes to be able to write off the whole of the loss in the current year. This concern was originally founded in 1843 by Ferdinand Kohlstadt & Co. to produce elastic; 14 years later rubber thread production was started. The present owners took over the business 60 years ago. They now have about 340 employes.

Higher Import Duties

As from September 6, 1932, certain articles will pay double and in some cases treble the import duty now imposed on them when entering Germany. These include clothing and accessories of rubberized and elastic fabrics (except corsets), which are taxed at 880 marks per quintal instead of 440 marks, if the fabric is wholly or partly of silk, and 720 instead of 240 marks if of other yarns. Uncovered rubber thread will pay 100 instead of 50 marks per quintal; if covered with yarn other than silk, 160 instead of 80 marks, and if covered wholly or partly with silk, 240 instead of 120 marks. Goods of asbestos and of asbestos combined with rubber are dutiable at 200 instead of 100 marks per quintal.

Analysis of 21 Companies

A feature of the 1931 business analysis of leading German rubber manufacturers, published in *Gummi-Zeitung*, is the number that reduced their capital. These include the Continental Gummi-Werke A. G., which reduced from 40,100,000 to 37,100,000 marks; Asbest & Gummiwerke Alfred Calmon A. G., from 2,450,000 to 2,320,000 marks; C. Muller Gummiwarenfabrik, from 1,100,000 to 1,000,000 marks; Veithwerke A. G., from 1,260,000 to 660,000 marks; Veritas Gummiwerke A. G., from 1,320,000 to 790,000 marks; Franz Clouth Rheinische Gummiwaren Fabrik A. G., from 2,310,000 to 2,250,000 marks, but since 750,000 marks of the latter amount is not paid up, the actual present capital is 1,500,000.

In the case of the first 3 firms, reductions affected the spare capital. On the whole, however, the losses sustained during 1931 were more severe than even the reductions in capital suggest as is shown by the inroads that several firms have had to make in their reserves. Business conditions have bred greater caution, and manufacturers are more careful about extending credits as is indicated by the shrinkage in the amounts outstanding.

The profit and loss accounts reveal net profits in 1931 for only 6 of the 21 concerns against 14 in 1930 and 16 in 1929; while 7 show losses in 1931 against 5 in 1930 and 2 in 1929. Of the 6 profit yielding concerns, 5 paid dividends, 2, Continental and Vulkan, only being able to maintain the rate of the year before although they had to use reserves to do so. Except for the Continental the dividend paying companies in 1931 were all smaller concerns, which reported increased sales both as to value and quantity; and the 3 smallest even show increases in net profits, whereas even the Continental noted declines in these respects.

Norway

The entire share capital of the Norske Galosche-og Gummivarefabrik A. S., Mjondalen, Norway, has been acquired by the A. S. Askim Gummivarefabrik, Askim, Oslo. The former concern, capitalized at 480,000 kroner, was the second largest Norwegian footwear factory. In addition it had an important technical rubber goods section employing about 400 workers. The Askim company, with capital of 1,500,000 kroner, at present has about 1,000 employes. The combine will continue to concentrate on footwear and will also manufacture automobile and cycle tires besides the technical goods and later on possibly articles that are as yet not made in Norway.

Sweden

Helsingborgs Gummifabriks A. B., Helsingborg, reported net profits of 859,000 kronor and distributed a 5½% dividend against 7% the year before. The Ryska Gummifabriks A. B., Malmo, had net profits of 323,000 against 293,000 kronor and paid a 9% dividend against 12%. The Skandinaviska Gummifabriks A. B., Viskafors, booked 206,000 against 256,000 kronor net profit and also declared 9% against 12% in dividends.

The Forenade Gummifabrikernas A. B., Helsingborg, the holding company of the above 3 concerns, reported 1,390,000 kronor against 1,760,000 kronor net profits and declared a 7% dividend on the preferred stock, but again nothing on the common share capital of 10,400,000 kronor.

The Gummiimport Pepege A. B., Malmo, formed to import rubber goods from Poland, is in liquidation.

France

Etablissements Monoto, with headquarters at Toulouse, recently was formed to manufacture all kinds of rubber goods. It has a capital of 1,200,000 francs in shares of 100 francs.

Société des Pneumatiques Dunlop has increased its capital from 37,500,000 francs to 75,000,000 by issuing 75,000 new shares of 500 francs.

Manufacture de Caoutchouc de St.-Ouen, Paris, capitalized at 1,600,000 francs, and S. A. des Etablissements Primus, Levallois-Perret, with capital of 560,000 francs, are to be dissolved. La Renovation Pneumatique, Colombes (Seine), capital, 400,000 francs, has failed.

A committee has been appointed to investigate the part played by the rubber flooring in the fire that destroyed the French *S. S. Georges Philippar*, some months ago. F. Jacobs, discussing the matter in the *Revue Générale du Caoutchouc*, shows that no instance of spontaneous combustion of rubber is known, and there are no grounds for supposing that it helps to spread fire rapidly. He recalls that in the case of the fire on the *S. S. Paris*, it was later on found that incompletely burned rubber flooring was found in places where everything else that was combustible had been burnt up.

U. S. Rubber Exports

That United States exports of rubber products go everywhere—to the far corners of the world—is revealed by a casual examination of official statistics. Rubber shoes are sent to the Gold Coast, Liberia, Nigeria, and Iraq, and some canvas rubber-soled shoes have been shipped to Iceland. Toys and rubber balls worth $1,500 for Albania, and 59 dozens of bathing caps for Malta, Gozo, and the Cyprus Islands also are examples of the entrance of rubber products into distant lands. *Commerce Reports.*

Rubber Industry in Far East

NETHERLANDS EAST INDIES

Plans to Increase Rubber Consumption

Once again necessity proves to be the mother of invention. This time she has driven various divisions of the rubber industry to cooperate in finding ways and means of increasing consumption of rubber goods. According to a recent circular outlining plans in this direction, it was decided at a combined meeting of the directors of the Algemeen Landbouw Syndicaat, the South & West Sumatra Syndicate, and the Unions of Owners of Netherlands Indies Rubber, Coffee (and Cocoa) Tea and Quinine Estates, that the first named body and the experiment stations should busy themselves with research work and measures to expand the markets for rubber and latex in the Far East and particularly in the Netherlands Indies. To this end, a committee has been appointed consisting of G. J. Wehry, J. J. B. Deuss, Th. A. Meister, H. van Lennep, T. A. Tengwall, W. F. de Buy Wenniger, and H. J. van Holst Pellekaan, and thus representing merchants, experiment stations, planters, and, indirectly, the government. Mr. Wehry is president, and Mr. Meister, secretary. Mr. Tengwall and Mr. Kraay, of the West Java Experiment Station, will devote much of their time to research in the desired field.

In the present condition of the rubber industry no considerable financial backing can be expected, and no elaborate factories can be planned. Instead, manufacturing would have to be done with simple and cheap equipment, preferably on the rubber estates themselves with the help of the estate force. However, if the committee found it advisable to do so—to aid in popularizing a very promising article—central and small workshops might be established.

To stimulate interest in the plan it is proposed to offer semi-annually 2 prizes, one of 250 guilders and one of 100 guilders, for the best suggestions for new goods which could be made locally without expensive machinery and which would find a ready market in the Dutch Indies, chiefly among the natives, and later on in other parts of Asia. To suggest the lines desired to work along, several possible applications are mentioned: cheap rubber sheeting or mattresses for the natives, vulcanized soles (at present these are imported chiefly from Japan and Singapore), roofing materials, fire lighters, rubber roads, rubber for utensils, "shoes" for cattle. In the latter connection it is interesting to note that at present old tires are pretty generally used in Java to protect the hoofs of cattle.

The possibilities of using latex for roads are already under investigation at the West Java Experiment Station, and contact has been established with the Netherlands Indies Roads Association and Mr. van Alphen de Veer's laboratory for testing materials at Bandoeng, both of which have also promised to cooperate with the new committee.

At the first meeting of the committee it further developed that even before its appointment the West Java Experiment Station had begun research work in producing bricks of coal dust and rubber briquets, latex compounds for roads, chlorinated latex for making paints; also in vulcanizing rubber goods and in making varnishes and lacquers from rubber. A local paint manufacturer, P. A. Regnault, is also investigating this last problem.

Perfumed Rubber

Actually this heading should be "Odorous Rubber," for that was what the inventor, G. M. Kraay, really set out to develop; the perfumed rubber was an afterthought. Mr. Kraay states in a preliminary communication to the *Bergcultures* that he had observed that rubber had the property of retaining volatile, organic substances for long periods and of only giving them off in very small quantities at a time. This condition suggested the use of rubber to carry substances such as insecticides, disinfectants, etc. For instance, in combating the destructive white ants carbon disulphide is useful, but it has no lasting effect as it is very volatile, and all traces of it disappear quite rapidly; then the trouble with the ants recommences. When, however, a solution of rubber in carbon disulphide was poured into the ant-infested holes and cracks, not only were these closed up by the rubber, but as the poisonous vapors were given off slowly, the action continued for a long time and there was no recurrence of white ants.

Rubber was also treated with p.-dichlorobenzene and in the form of little stickers and also lumps of the consistency of putty, was used in exterminating insects. One scientist reports that the treated rubber stickers had a deadly effect on rice weevils, which are usually very resistant to poisons.

At the suggestion of Mr. Deuss perfumed rubber was also prepared, and samples have already been sent to a firm for perfuming artificial rubber flowers.

Rubber in Oil

While on the subject of new uses for rubber, mention must also be made of a method of combining rubber and oil for illuminating purposes or for motor fuel. The inventor, A. C. Tempelaar, proposes to centrifuge latex to obtain 38% and 20% latex. The former is to be exported as is, while the latter is to be dried in the sun and then dissolved in petroleum, benzine, solar oil, etc. Mr. Tempelaar stated at a meeting of the Bantam planters that the sun-dried rubber from 20% latex easily dissolves in the oils named and that a mixture of this rubber and petroleum, when used in an oil lamp, gave such a bright light that he could see to read clearly at a distance of 45 meters; whereas with ordinary petroleum the distance was only 25 meters. A mixing of rubber and benzine used in an automobile also gave excellent results. The addition of the rubber, it is claimed, raises the caloric value of the oil or benzine.

The chairman at the meeting, A. van Leeuwen, advised planters to experiment along these lines, and he put his factory, shop, and necessary coolies at the disposal of Mr. Tempelaar for further work on his invention.

Estates Operating Again

Local papers report that several rubber estates in the Malang districts, which had been closed down, have resumed operations and that a movement of coolies to the estates has been noted. In addition the Handelsvereeniging Amsterdam is to reopen the Gohor Lama and Aloer Djamboe estates.

Estates Not Being Tapped

In view of the fact that in British Malaya corrections were made in the total tappable area as of the end of 1931, during the first months of 1932, the last known figure, 571,659 hectares has been given in the summary below.

AREAS NOT BEING TAPPED DURING 1932

	British Malaya*		
End of	Tappable Area End of 1931 Hectares	Area Not Tapped Hectares	In %
Jan.	571,659	110,866	19.4
Feb.	571,659	115,926	20.2
Mar.	571,659	112,743	19.7
Apr.	571,659	115,049	20.1
May	571,659	128,062	22 4
June	571,659	131,301	23.

	Netherland India†		
End of	Tappable Area End of 1931 Hectares	Area Not Tapped Hectares	In %
Jan.	382,000	39,499	10.1
Feb.	382,000	46,541	12.2
Mar.	382,000	49,187	13.
Apr.	382,000	68,149	18.
May	382,000	89,957	23.7
June	382,000	103,561	27.1

*Published in *Malayan Agr. J.*
†Data from Central Statistical Office, Batavia.

These figures show that at first more Malayan estates went out of tapping than in Netherland India. After the non-restriction announcement Netherland India overtook British Malaya. *Rubber Division*, Dept. of Commerce, Washington, D. C.

MALAYA

Agency System

Conditions being what they are in the rubber growing industry, it is not surprising that companies have discharged many planters and have drastically reduced the pay of the rest. However one may deplore the necessity of such action, one can hardly criticize firms for resorting to such attempts to keep going. But as a recently issued memorandum of the Incorporated Society of Planters shows, many companies in trying to economize have been only too ready to sacrifice the planter before endeavoring to save in other directions, and some, through unscrupulous methods, have even induced employes to give up their old contracts for new ones depriving them of all their rights and exposing them to summary dismissal. It is also pointed out that the agency system consumes unnecessarily large sums of money and that accordingly substantial economies could be effected here.

The agency system, it should be explained, originated in the early days from the necessity of companies to send all machinery, stores, building materials, etc., to Malaya, and agents were accordingly appointed for this work. Some agents also financed estates in the early stages of development. These practices led to the custom—now obligatory—first, of buying all supplies through the agencies regardless of their prices, and, second, of paying agents half a cent (Straits currency) per pound for handling the rubber when the estates became productive. At present the agency houses not only supply all necessary materials to the estates, but practically dictate their management through the visiting agents that periodically visit the estates.

Originally the idea of a visiting agent was to have an experienced planter, independent of the agency houses, visit the estate regularly to report on the management of the property, advise the manager, and criticize the charge of the agency houses. But, as a planter writes to the *Straits Times*, these independent visiting agents have gradually been replaced by agents in the permanent employ of the agency houses, and obviously their reports cannot be expected to be unbiased. Another undesirable feature pointed out is that frequently the directorate of planting companies includes one or more members of big agency firms. Under these circumstances, it is held, the agency system is not the soundest for an estate.

Prang Besar Clones

The Prang Besar Rubber Estate, planted exclusively with buddings, supplies budwood, budded stumps, and seed from isolated gardens to any estate anywhere. At the recent annual meeting of the company, the chairman, Eric Macfadyen, stated that during the business year ended March 31, 1932, planting material had been sold to 102 estates. About 50% of the sales were to Malaya, and the rest to Sumatra, Java, Borneo, Indo-China, Ceylon, and Africa, against 85% to Malaya and 15% elsewhere the year before. Receipts from sales decreased from £22,344 in 1929-30 to £4,078 in 1931-32, but, as Mr. Macfadyen says, under present conditions the surprise is not that so little was sold, but so much.

At the end of 1931 the budded area in Malaya was given as 134,000 acres while in the Dutch East Indies this was 290,000 acres at the end of 1930. But Mr. Macfadyen holds that since in most cases areas budded before 1928—with what is now considered unproved material—will not show very high yields, the budded area worth considering at present covers about 250,000 acres altogether in Malaya and the Dutch Indies. This acreage will come into production between 1933-1938 and is expected to yield on an average double the yield from unselected rubber.

That some very interesting clones were started before 1928 nevertheless is shown by the yield figures of 6 selected Prang Besar clones budded in 1922 and 1923, and the best, when test tapped in 1931, gave an output averaging 27½ pounds per tree, per year, equivalent to 2,200 pounds per acre calculated on 80 trees per acre tapped 160 times a year. The least productive of these clones averaged 18 pounds 11 ounces per tree per annum, or 1,495 pounds per acre. The trees, Mr. Macfadyen stated, were representative and not exceptional, while tapping was on commercial lines, and the records rather understate than exaggerate the yield capacities of the clones.

Of course the fact that Prang Besar is a good piece of land in a good district must be taken into account when considering these yields, for soil, climate, and cultivation are important factors for outputs of even the best clones, and the above yields would not necessarily be obtained from the clones wherever they are planted. In fact, the yield of clones is something that no supplier of budwood will as yet guarantee. However, because of the comparative uniformity of a clone in regard to root system, crown development, branching habit, etc., it is possible to recommend one clone as being more suitable for an estate than another. Since this uniformity is also noted in the rate of growth, one clone regularly tending to develop at a slower rate than another, the way is opened for important modifications in planting methods by the judicious mixture of clones on an estate. To quote Mr. Macfadyen:

"Thus, if sylvicultural practice from now on, as seems very possible, is destined to have more influence upon rubber growing, and the type of new clearing with which we have been familiar in the past tends to give way to a somewhat dense and casually spaced plantation which will be thinned out heavily year by year, we are now in a position to offer a selection of planting material containing a high proportion of short-lived clones which can be relied upon to mature within, say, 4 years of planting, mixed with others which could with advantage be left untapped for twice that length of time, but which would furnish a superlatively vigorous and high-yielding permanent population."

In regard to seed selection, Mr. Macfadyen believes that eventually Prang Besar will be able to offer in commercial quantities seed which can be guaranteed to be derived exclusively from high-yielders of proved parentage, possessing desirable physiological characters.

On the mature portion of Prang Besar a very light tapping method was followed, ⅓ of the estate only being tapped for 4 months of the year and about ⅔ during the other 8. Calculated over the average area in tapping during the year, the yield was 704 pounds per acre.

Company Notes

The United Malacca Rubber Estates, Ltd., in its latest report states that the all-in cost of production to the end of July, 1932, was 6.30 cents (Straits currency) per pound. But owing to the improvement in the price of the commodity, coolies are asking for higher wages; therefore, if the upward tendency of the market continues, the estimated cost of production will increase proportionately. This report indicates what to expect as soon as rubber prices definitely start to move up again. As has been pointed out before, the present low costs are only temporary, really fictitious, because obtained in an abnormal manner under abnormal conditions and the slightest improvement in business is bound to upset calculations based on them.

In a single issue of the *Straits Budget* are to be found notices regarding the reconstruction of 4 different rubber companies. The Ipoh Rubber Estate, registered in October, 1925, and owning 1,044 acres of which 548 are in bearing, will reduce its issued and paid-up capital of £80,000 to £40,000, while £10,000 of new capital is to be raised to enable the estate to carry on for 3 years. This company paid a 10% dividend the first year, but nothing since.

Selangor River Rubber Estates Co. will liquidate for reconstruction. The company recently sold forward 40 tons of rubber per month for October, November, and December, 1932, at the equivalent of 2¾d. per pound delivered in London.

At a special general meeting the Kuantan Rubber Syndicate decided to wind up voluntarily to reconstruct itself. A new company, the Kuantan Rubber Co., Ltd., will be registered in the Federated Malay States.

Finally the Foothills (Malay) Rubber Estate Co. will be reorganized, capitalized at £40,000 in 2s. shares.

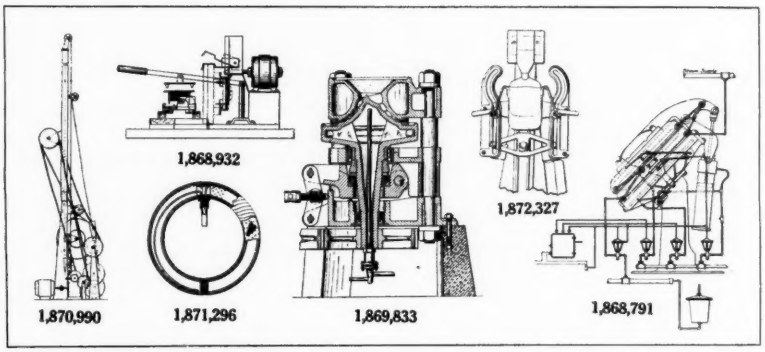
Conversion of C.° to F.°

To convert degrees Centigrade to degrees Fahrenheit, multiply the degrees C. by 9, divide by 5, and add 32. Formula—(Degrees C. × 9/5) + 32 = Degrees F.

To convert degrees F. to degrees C., subtract 32 from the degrees F., multiply by 5, and divide by 9. Formula—(Degrees F. —32) × 5/9 = Degrees C.

International Traders Handbook.

Patents, Trade Marks, Designs



MACHINERY

United States

1,868,791.* **Vulcanizing System.** The feature of this system of piping permits the condensate from a vulcanizer to exhaust automatically into the open air at some period during its cycle of operation in forming a tube or tire. In connection with the vulcanizer there is provided a timing device including pilot valves which are actuated in accordance with a predetermined schedule by a time controlled cam and cam follower. R. D. Cleveland, assignor to Taylor Instrument Cos., both of Rochester, N. Y.

1,868,932.* **Receptacle Forming Apparatus.** By this device depressed shapes in sponge rubber such as soap containers can be cut to desired form. The apparatus also satisfactorily provides for quickly, regularly, and economically cutting and removing the center portions of a container of sponge rubber to form the cavity or receptacle of the dish. W. Vernet, assignor to Rubbersan Products, Inc., both of New York, N. Y.

1,869,833.* **Masticator.** The degree of mastication or mixing of materials such as rubber and reclaim can be controlled and adjusted as desired in this apparatus. The gum, fed into a hopper in the fixed head of the machine, passes outwardly and downwardly while being masticated in a single continuous spiral groove in both head and rotor. Provision is made for controlling the heat of mastication by water circulation. T. H. Williams, Cuyahoga Falls, assignor to National Rubber Machinery Co., Akron, both in O.

1,870,990.* **Wire Insulating Apparatus.** The special feature of this apparatus is in the application of equeous dispersions including vulcanized but substantially uncoagulated rubber as in vulcanized latex. The principle embodied in the method and apparatus is that such liquid dispersions tend to flow more readily over a surface previously wetted by the liquid dispersion than over a surface previously unwetted by the liquid dispersion. The arrangement is such that the wire to be insulated passes upwardly over the guide sheaves without contacting the die. R. R. Evans, Watertown, assignor to Simplex Wire & Cable Co., Boston, both in Mass.

1,871,296.* **Endless Mandrel.** This device is useful in manufacturing rubber inner tubes from rubber dispersions by the deposition of the solid constituents of the rubber dispersion on the mandrel. The latter is continuous and so constructed as to permit its removal from the interior of the tube after the latter has been formed. H. T. Battin, Ridgewood, N. J., assignor to Morgan & Wright, Detroit, Mich.

1,872,327.* **Stripping Machine.** The operation of stripping a molded rubber water bottle from the core upon which it is vulcanized is accomplished by mechanically moved hooks which engage each edge of the article to stretch it open and then, by moving downward, stripping it from the fixed mold. E. L. Patten, New Haven, assignor to Goodyear's India Rubber Glove Mfg. Co., Naugatuck, both in Conn.

1,874,014. **Thin Rubber Article Machine.** F. L. Killian, Akron, O.

1,874,173. **Cutter.** M. E. Davis, assignor to Leo Meyer Co., both of Akron, O.

1,874,750. **Bias Cutter.** A. L. Heston, Akron, O., assignor to Seiberling Rubber Co., a corp. of Del.

1,875,028. **Bead Forming Device.** Y. H. Kurkjian, Hawthorne, N. J., assignor to Carl J. Schmid, Inc., New York, N. Y.

1,875,071. **Mold with Ejector.** M. H. Martindell, assignor to Joseph Stokes Rubber Co., both of Trenton, N. J.

1,875,385. **Expansible Pulley.** E. F. Maas, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,875,439. **Endless Belt Tester.** W. H. Gerstenslager, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,875,479. **Airbag Water Removing Device.** H. R. Minor, Cleveland, O., assignor to Liquid Carbonic Corp., Chicago, Ill.

1,875,617. **Measuring Instrument.** A. E. Lee, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,875,727. **Cavity Repair Vulcanizer.** J. C. Heintz, Lakewood, O.

1,875,786. **Tire Tester.** H. E. Warner, W. Springfield, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,875,816. **Vulcanizer with Interchangeable Shell.** A. R. Krause, assignor to Gillette Rubber Co., both of Eau Claire, Wis.

1,875,876. **Dental Vulcanizer.** E. L. Langdon, Chicago, Ill.

1,876,087. **Tubular Article Apparatus.** W. C. State, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,876,100. **Tire Vulcanizer.** K. K. A. Thorsen, San Francisco, Calif.

1,876,241. **Conduit Making Machine.** E. C. Kastner, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,876,251. **Dusting Machine.** P. W. Lehman, Milwaukee, Wis., assignor to Fisk Rubber Co., Chicopee Falls, Mass.

1,876,252. **Mold Handling Device.** P. W. Lehman, Milwaukee, Wis., assignor to Fisk Rubber Co., Chicopee Falls, Mass.

1,876,256. **Tubing Machine.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,309. **Mill Plastic Material Remover.** W. E. MacMonagle, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,876,333. **Annular Article Vulcanizer.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,375. **Annular Article Making Device.** G. F. Wikle, Milwaukee, Wis., assignor to Fisk Rubber Co., Chicopee Falls, Mass.

1,876,396. **Continuous Weighing Device.** P. L. Butterfield, Springfield, assignor to R. W. Boyden and C. A. Dana, as receivers of Fisk Rubber Co., all of Chicopee Falls, all in Mass.

1,876,414. **Bead Closing Mechanism.** R. P. Harvey, Springfield, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,574. **Windshield Wiper Blade Making Device.** J. W. Anderson, Gary, Ind.

1,876,600. **Thread Forming Apparatus.** F. W. Bommer and C. E. Clarke, both of Winchester, assignors, by mesne assignments, to Stowe-Woodward, Inc., Newton, all in Mass.

1,876,633. **Tire Builder.** C. H. Desautels, Springfield, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,712. **Temperature Measurer.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,716. **Tube Splicer.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,775. **Skiving Machine Cutter.** E. T. Smith, Ludlow, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,876,815. **Tire Wrapper.** G. F. Wilson and F. J. Shook, both of Akron, O., assignors to B. F. Goodrich Co., New York, N. Y.

*Pictured in group illustration.

1,876,896. **Press.** J. R. Fleming, Cleveland, and E. M. Winegar, Willoughby, assignors to Ohio Rubber Co., Cleveland, all in O.

1,876,898. **Bead Strip Attaching Press.** J. R. Fleming, Cleveland, and E. M. Winegar, Willoughby, assignors to Ohio Rubber Co., Cleveland, all in O.

1,876,967. **Tire Painting Machine.** A. R. Krause and A. C. Hirsch, assignors to Gillette Rubber Co., all of Eau Claire, Wis.

1,877,175. **Sectional Tire Repair Vulcanizer.** J. C. Heintz, Lakewood, O.

1,877,298. **Heel Molding Device.** J. O. Goodwin, Akron, assignor to Seiberling Rubber Co., Barberton, both in O.

1,877,673. **Hollow Ball Mold.** J. A. Law, Ascot Vale, Victoria, Australia.

1,877,746. **Collapsible Drum.** A. L. Heston and F. J. Shook, both of Akron, and E. W. Evans, Columbiana, assignors to National Rubber Machinery Co., Akron, all in O.

1,877,751. **Tire Core Extractor.** H. C. Bostwick, assignor to Akron Standard Mold Co., both of Akron, O.

1,877,761. **Nipple Molding Device.** F. Brown, assignor to General Health Corp., both of Philadelphia, Pa.

1,878,220. **Latex Pumping Apparatus.** H. Willshaw, W. G. Gorham, and R. F. Lee, all of Birmingham, England, assignors to American Anode, Inc., New York, N. Y.

1,878,453. **Rubber Cutter.** A. Lade, Northampton, assignor to B. F. Perkins & Son, Inc., Holyoke, both in Mass.

1,878,575. **Tire Valve Insides Assembler.** L. C. Broecker, Bridgeport, Conn., assignor to Firestone Steel Products Co., Akron, O.

Dominion of Canada

325,229. **Footwear Cutter.** H. C. L. Dunker, Helsingborg, Sweden.

325,526. **Tire Making Machine.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of A. O. Abbott, Jr., Detroit, Mich., U. S. A.

325,730. **Weighing Device.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of J. E. Cady, Indianapolis, Ind., U. S. A.

325,732. **Flashless Article Mold.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of H. Z. Cobb, Cranston, R. I., U. S. A.

325,748. **Tire Stitcher.** Goodyear Tire & Rubber Co., assignee of E. G. Templeton, both of Akron, O., U. S. A.

325,749. **Tire Tread Strip Machine.** Goodyear Tire & Rubber Co., assignee of R. W. Snyder and J. I. Haase, co-inventors, all of Akron, O., U. S. A.

325,852. **Thread Making Device.** Dunlop Rubber Co., Ltd., London, England; and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; assignees of E. A. Murphy and W. G. Gorham, co-inventors, both of Birmingham, England.

326,004. **Thin Rubber Article Device.** Latex Holding Corp., assignee of F. L. Killian, both of Akron, O., U. S. A.

326,049. **Thread Forming Device.** Dunlop Rubber Co., Ltd., London, England; and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; assignees of E. A. Murphy, Birmingham, England.

326,246. **Thread Collecting Device.** Dunlop Rubber Co., Ltd., London, England; and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; assignees of E. A. Murphy and W. G. Gorham, co-inventors, both of Birmingham, England.

United Kingdom

372,043. **Tire Building Machine.** Morgan & Wright, Detroit, assignee of C. A. Ostling and J. J. McEwan, both of Pontiac, all in Mich., U. S. A.

373,328. **Stair Tread Mold.** J. F. Wildy, London, and G. A. Hutcheson, Walton-on-Thames.

373,496. **Portable Vulcanizer.** J. M. D'Artois, Brussels, Belgium.

373,895. **Tire Repair Vulcanizer.** H. Birdsall, Dumfries.

374,307. **Shoe Mold.** M. Wissaert, Brussels, Belgium.

374,407. **Rubber Molding Machine.** Dunlop Rubber Co., Ltd., London.

374,450, 374,470, and 374,472. **Denture Molding Device.** C. Joannides, London.

375,244. **Latex Extrusion Nozzle.** Revere Rubber Co., Providence, R. I., assignee of E. Hazell, New York, N. Y., both in the U. S. A.

375,261 and 375,262. **Belt Vulcanizer.** O. Schmidt, Greifenstein-on-Donau, Austria.

Germany

558,636. **Fabric Feeding Device.** Dunlop Rubber Co., Ltd., London, England. Represented by B. Kaiser and E. Salzer, both of Frankfurt a. M.

559,104. **Mold.** Morgan & Wright, Detroit, Mich. Represented by W. Karsten and C. Wiegand, both of Berlin.

559,961. **Belt Press Regulator.** G. Siempelkamp & Co., Krefeld.

PROCESS

United States

1,875,185. **Latex-Treated Thread.** J. J. Stöckly, Teltow-Seehof, and E. Witte, Berlin-Lichterfeld, both in Germany, assignors, by mesne assignments, to American Glanzstoff Corp., New York, N. Y.

1,875,390. **Pneumatic Wheel.** A. J. Musselman, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,875,503. **Protected Hydrogen Electrode.** B. W. Rowland, Appleton, Wis., assignor to Goodyear Tire & Rubber Co., Akron, O.

1,875,582. **Rubber Label.** J. R. Foley, New York, N. Y.

1,875,643. **Pneumatic Wheel.** A. J. Musselman, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,876,076. **Treating Tire Beads.** B. W. Rowland, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,876,432. **Multi-colored Latex Sheets.** D. J. P. Phillips, London, England, assignor of ½ to J. B. Crockett, Cambridge, Mass.

1,876,745. **Applying Heat to Core Coverings.** F. M. Potter, Rome, assignor to General Cable Corp., New York, both in N. Y.

1,877,207. **Molding Aqueous Dispersions.** D. F. Twiss and E. A. Murphy, both of Birmingham, England, assignors to Dunlop Rubber Co., Ltd., a British company.

1,877,299. **Chicle Recovery.** M. A. Gordon, Little Neck, assignor to American Chicle Co., Long Island City, both in N. Y.

1,877,426. **Articles from Aqueous Dispersions.** E. W. B. Owen, Walmley, assignor to Dunlop Rubber Co., Ltd., Birmingham, both in England.

1,877,527. **Gassed or Sponge Rubber.** E. J. Moran, assignor to Velvetex Corp., both of La Porte, Ind.

1,878,151. **Articles from Aqueous Dispersions.** P. Klein, Budapest, Hungary; A. Szegvári, Akron, O.; and R. F. McKay, C. Hayes, and G. W. Trobridge, all of Birmingham, England, assignors to American Anode, Inc., Akron, O.

1,878,483. **Deposits from Aqueous Dispersions.** M. Forrer, Paris, France, assignor, by mesne assignments, to American Anode, Inc., a corp. of Del.

1,878,885. **Hose.** H. Pahl, Dusseldorf-Rath, Germany.

Dominion of Canada

325,236. **Latex Impregnated Material.** P. H. Head, Attenborough, Nottinghamshire, England.

325,524. **Footwear.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of R. J. Ford, Bristol, R. I., U. S. A.

325,746. **Electric Insulating Material.** J. R. Geigy S. A., assignee of P. Koch, both of Basle, Switzerland.

325,872. **Motorcycle Saddle Top.** H. and J. Jelley, co-inventors, both of Birmingham, England.

325,896. **Belt.** A. L. Freedlander, Dayton, O., U. S. A.

325,977. **V-Type Belt.** Dayton Roderwald Co., Dayton, O., U. S. A., assignee of R. Roderwald, Berlin, Germany.

326,048. **Sponge Rubber Goods.** Dunlop Rubber Co., Ltd., London, England; and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; assignees of W. H. Chapman and D. W. Pounder, co-inventors, both of Birmingham, England.

United Kingdom

372,862. **Boot.** B. F. Goodrich Co., New York, N. Y., assignee of L. H. Burnham, Lexington, Mass., both in the U. S. A.

373,014. **Rubber Thread.** G. Hagen A. G., Cologne, Germany.

373,141. **Rubber Coated Wire.** Dunlop Rubber Co., Ltd., London; Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; and F. H. Lane, E. W. Madge, and E. A. Murphy, all of Dunlop Rubber Co., Ft. Dunlop.

373,431. **Rubber Rings.** Soc. Italiana Pirelli, Milan, Italy.

373,589. **Attaching Rubber to Metal.** Michelin & Cie, Puy-de-Dome, France.

374,271. **Masticating Rubber.** T. J. Drakeley, London; F. H. Cotton, Hertfordshire; and D. Bridge & Co., Ltd., Manchester.

374,273. **Driving Belt.** A. L. Freedlander, Dayton, O., U. S. A.

374,471. **Packing Dental Rubber.** C. Joannides, London.

374,723. **Rubber Coated Metal.** Metallges. A. G., Frankfurt a. M., Germany.

374,842. **Rubber Lining Metal Tubes.** M. Wildermann, London.

374,920. **Molding Hollow Articles.** P. Faber and We- Pe- Fa Neuheiten Ges., both of Oberstein-on-Nahe, Germany.

Germany

558,610. **Tubeless Tires.** Goodyear Tire & Rubber Co., Akron, O., U. S. A. Represented by G. Lotterhos, Frankfurt a. M., and H. Mortensen and W. von Sauer, both of Berlin.

558,805. **Rubber-tipped Laces.** A. Schoeler, Wuppertal-Barmen.
559,477. **Block Belts.** R. Roderwald, Berlin-Grunewald.
559,960. **Solid Rubber.** Societa Italiana Pirelli, Milan, Italy. Represented by W. Ziegler, Berlin-Charlottenburg.

CHEMICAL

United States

1,874,307. **Insulating Compound.** A. R. Kemp, Westwood, N. J., assignor to Bell Telephone Laboratories, Inc., New York, N. Y.
1,874,639. **Accelerator.** W. Scott, assignor to Rubber Service Laboratories Co., both of Akron, O.
1,874,886. **Accelerator.** H. M. Bunbury, Prestwich; J. S. H. Davies, Crumpsall; and W. J. S. Naunton, Prestwich, all in England, assignors to Imperial Chemical Industries, Ltd., a corp. of Great Britain.
1,874,895. **Antioxidant.** W. S. Calcott and W. A. Douglass, both of Pennsgrove, N. J., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del.
1,875,372. **Non-blooming Compound.** H. A. Endres, assignor to Goodyear Tire & Rubber Co., both of Akron, O.
1,875,552. **Mold Cleaning Solution.** R. C. Bateman, assignor to Goodyear Tire & Rubber Co., both of Akron, O.
1,875,903. **Age Resister.** I. Williams and A. M. Neal, assignors to E. I. du Pont de Nemours & Co., all of Wilmington, Del.
1,875,943. **Accelerator.** W. Scott, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.
1,875,997. **Rubber Vulcanization.** L. A. Edland, Norwalk, Conn., assignor to R. T. Vanderbilt Co., Inc., New York, N. Y.
1,876,897. **Vulcanization Process.** C. F. Flemming, Willoughby, assignor to Ohio Rubber Co., Cleveland, both in O.
1,877,854. **Elastic Product.** M. Hagedorn, Dessau in Anhalt, assignor to I. G. Farbenindustrie A. G., Frankfurt a. M., both in Germany.
1,878,654 and 1,878,655. **Accelerator.** G. S. Whitby, Montreal, P. Q., Canada, assignor, by mesne assignments, to Roessler & Hasslacher Chemical Co., New York, N. Y.

Reissue

18,603. **Age Resister.** A. M. Clifford, Stow, assignor to Goodyear Tire & Rubber Co., Akron, both in O.

Dominion of Canada

325,493. **Cold Curing Process.** Canadian Industries, Ltd., Montreal, P. Q., assignee of E. A. Bevan and W. J. S. Naunton, co-inventors, both of Manchester, England.
325,731. **Accelerator.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of W. E. Messer, Naugatuck, Conn., U. S. A.
325,733. **Fiber Product Manufacture.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of W. A. Gibbons, Montclair, N. J., U. S. A.
325,734. **Fiber Board Manufacture.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of J. Mac G. Carnie, Brooklyn, N. Y., U. S. A.
326,014. **Accelerator.** Rubber Service Laboratories Co., Akron, O., assignee of R. L. Sibley, Nitro, W. Va., both in the U. S. A.
326,145. **Age Resister.** Canadian Industries, Ltd., Montreal, P. Q., assignee of I. Williams and C. C. Smith, co-inventors, both of Pennsgrove, N. J., U. S. A.
326,146. **Age Resister.** Canadian Industries, Ltd., Montreal, P. Q., assignee of I. Williams and A. M. Neal, co-inventors, both of Wilmington, Del., U. S. A.

United Kingdom

373,098. **Rubber Compound.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.
373,134. **Gutta Percha, Balata Composition.** W. S. Smith, Devon; and H. J. Garnett and J. N. Dean, both of Kent.
373,228. **Synthetic Rubber.** A. Davies, London.
373,263. **Golf Ball Composition.** Dunlop Rubber Co., Ltd., London; Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; and E. A. Murphy, of Dunlop Rubber Co., Ft. Dunlop.
373,278. **Rubber Treatment.** Naugatuck Chemical Co., Naugatuck, Conn., assignee of W. A. Gibbons, of United States Rubber Co., Passaic, N. J., both in the U. S. A.
373,415. **Plastic Composition.** J. E. Cooper, Kent; and A. E. Lever, Surrey.
373,448. **Composite Tile.** E. R. Harrap and G. Latham, both of Manchester.
374,085. **Rubber Composition.** H. Ziegner, Hagen, Westphalia, Germany.
374,123. **Accelerator.** Rubber Service Laboratories Co., Akron, O., assignee of R. L. Sibley, Nitro, W. Va., both in the U. S. A.
374,459. **Accelerator.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.
374,624. **Vulcanizing Rubber.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.
374,656. **Honing Stick Composition.** N. Braibant, Paris, France.
375,263. **Rubber Composition.** O. Schmidt, Griefenstein-on-Donau, Austria.

Germany

558,776. **Hard and Soft Rubber.** H. Ziegner, Hagen i. W.
558,888. **Anti-skid Rubber.** M. Herz, Berlin, and J. Talalay, Berlin-Treptow.
558,891. **Protective Substance.** I. G. Farbenindustrie A.G., Frankfurt a. M.

Latex

United States

1,874,546. **Latex Coagulation Process.** E. Konrad and W. Siefken, both of Cologne-Mulheim a. R., assignors to I. G. Farbenindustrie A. G., Frankfurt a. M., all in Germany.

Dominion of Canada

325,455. **Rubber-Cellulose Mixture.** M. Levin, New York, N. Y., U. S. A.
326,050. **Rubber Composition.** Dunlop Rubber Co., Ltd., London, England; and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands, assignees of E. A. Murphy, F. T. Purkis, and D. F. Twiss, co-inventors, all of Birmingham, England.

United Kingdom

372,917. **Plastic Composition.** Kolloidchemie Studienges, Hamburg; J. B. Carpzow, Börnsen; and R. Lenzmann, and M. March, both of Hamburg, all in Germany.
373,222. **Rubber Composition.** Dunlop Rubber Co., Ltd., London; Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; and E. A. Murphy and A. Niven, both of Dunlop Rubber Co., Ft. Dunlop.
373,223. **Rubber Sheeting.** Dunlop Rubber Co., Ltd., London; Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; and E. A. Murphy, of Dunlop Rubber Co., Ft. Dunlop.
373,262. **Treating Latex.** Dunlop Rubber Co., Ltd., London; Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands; and E. A. Murphy and D. F. Twiss, both of Dunlop Rubber Co., Ft. Dunlop.
375,270. **Latex Electrodeposition Process.** Siemens-Electro-Osmose Ges., Berlin, Germany.
375,288. **Rubber Paving Composition.** E. O. Cowper, London.

GENERAL

United States

1,874,023. **Fountain Pen.** F. M. Ashley, Brooklyn, N. Y.
1,874,120. **Pneumatic Tire.** J. W. Quynn, Parkersburg, W. Va.
1,874,197. **Inner Tube.** W. B. Lang, Roswell, N. Mex.
1,874,333. **Seat.** T. J. Nelson and C. H. Gerlofson, both of Chicago, Ill.
1,874,461. **Boot.** J. T. Crowley, Lambertville, N. J.
1,874,565. **Waterproof Joint.** D. McEachern, Duncan, B. C., Canada.
1,874,609. **Motor Vehicle.** C. R. Paton, assignor to Studebaker Corp., both of South Bend, Ind.
1,874,637. **Antiskid Device.** J. Schramm, McKees Rocks, Pa.
1,874,647. **Vehicle Spring.** H. G. Smith, Mishawaka, assignor to Studebaker Corp., South Bend, both in Ind.
1,874,667. **Medical Pump.** Y. Wada, Sendai-Shi, Japan.
1,874,724. **Multiple Leaf Spring.** J. W. Watson, Wayne, Pa.
1,874,761. **Car Truck Construction.** W. C. Klein, Allentown, Pa.
1,874,879. **Bathing Cap.** H. Brosch, Brooklyn, N. Y.
1,874,955. **Shoe or Cushion.** A. C. Fulton, assignor to Aetna Rubber Co., both of Ashtabula, O.
1,875,102. **Tire Insert.** C. S. Morse, DeKalb, Ill.
1,875,162. **Sandal.** G. E. Sayers, Boston, Mass.
1,875,399. **Accelerator Pedal.** O. C. Ritz Woller, Chicago, Ill.
1,875,405. **Detachable Horseshoe Calk.** C. G. Akerberg, assignor to Giant Grip Mfg. Co., both of Oshkosh, Wis.
1,875,424. **Signal Device.** W. V. Darling, Jr., Riverside, Calif., and R. J. Dykstra, Thompson Falls, Mont.
1,875,438. **Gasket.** H. Gabriels, Jr., Los Angeles, Calif.
1,875,445. **Cord Fabric.** L. S. Hall, New Bedford, Mass., assignor to Goodyear Tire & Rubber Co., Akron, O.
1,875,507. **Fountain Pen.** V. Savio, Los Angeles, Calif.
1,875,517. **Cord Fabric.** S. A. Steere, assignor to Goodyear Tire & Rubber Co., both of Akron, O.
1,875,630. **Swimming Belt.** A. A. Marengo, Stockton, Calif.
1,875,782. **Airbag Valve.** C. Van Rennes, Flushing, N. Y., assignor to Goodyear Tire & Rubber Co., Akron, O.
1,875,862. **Tire Pressure Gage.** J. C. Fair, Ft. Wayne, Ind.

1,875,874. **Tire Pressure Maintaining Device.** C. H. Johnson, assignor of ½ to A. E. Miller, both of Sacramento, Calif.
1,875,893. **Pneumatic Tire and Rim.** A. H. Shoemaker, Seattle, Wash.
1,876,016. **Tire.** C. H. Pederson, Pittsburgh, Pa.
1,876,068. **Balloon Tire and Wheel.** A. J. Musselman, Glen Ellyn, Ill., assignor to Goodyear Tire & Rubber Co., Akron, O.
1,876,338. **Rubber Sealed Fastener.** S. H. Norton, Meadville, Pa., assignor to Hookless Fastener Co., a corp. of Pa.
1,876,361. **Heel.** P. B. Sullivan, Randolph, Mass.
1,876,367. **Valve Pad.** E. A. Wakefield, Springfield, assignor to R. W. Boyden and C. A. Dana, receivers of Fisk Rubber Co., all of Chicopee Falls, all in Mass.
1,876,433. **Doll.** M. Sanders, assignor to Ideal Novelty & Toy Co., both of Brooklyn, N. Y.
1,876,450. **Container Closure.** C. H. Egan, Boston, and B. Dewey, assignors to Dewey & Almy Chemical Co., both of Cambridge, all in Mass.
1,876,458. **Doll.** A. M. Katz, assignor to Ideal Novelty & Toy Co., both of Brooklyn, N. Y.
1,876,519. **Window Guide Channel.** C. J. McKinney, Detroit, Mich.
1,876,704. **Vibration Insulator.** F. L. Lipcot, assignor to Rubber Shock Insulator Corp., both of Bridgeport, Conn.
1,876,713 and 1,876,714. **Fluid Pressure Connection.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.
1,876,715. **Deflator Cap.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.
1,876,817. **Bathtub Waste and Overflow.** J. Wolfferts, Dusseldorf, Germany.
1,876,849. **Steel and Rubber Product.** B. Bronson, Lakewood, assignor to Ohio Rubber Co., Cleveland, both in O.
1,876,923. **Surface Polisher.** J. M. Hanson, Detroit, assignor to Ford Motor Co., Dearborn, both in Mich.
1,877,055. **Seat Cushion.** A. A. Ruppert, Pleasant Ridge, assignor to General Motors Corp., Detroit, both in Mich.
1,877,064. **Scale Structure.** H. W. Schultz, Lakewood, assignor to Ohio Rubber Co., Cleveland, both in O.
1,877,360. **Pneumatic Wheel.** A. J. Musselman, Cuyahoga Falls, assignor to Goodyear Tire & Rubber Co., Akron, both in O.
1,877,411. **Bathing Cap.** M. S. Lower, assignor to Sun Rubber Co., both of Barberton, O.
1,877,600. **Pneumatic Tire.** F. A. Seiberling, Akron, and W. S. Wolfe, Fairlawn, assignors to Seiberling Rubber Co., Barberton, all in O.
1,877,706. **Airbag Coupling.** J. Wahl, Rosedale, assignor to A. Schrader's Son, Inc., Brooklyn, both in N. Y.
1,877,729. **Weather Strip.** E. F. Chaffee, assignor to O. M. Edwards Co., Inc., both of Syracuse, N. Y.
1,877,793. **Boat Fender.** D. E. Beynon, Toronto, Ont., Canada, assignor to Dunlop Tire & Rubber Corp., Buffalo, N. Y.
1,877,799. **Elastic Fabric.** F. L. Brigham, Upper Montclair, N. J.
1,877,805. **Solid Tire.** H. G. Bruner, Wakefield, assignor to Boston Woven Hose & Rubber Co., Cambridge, both in Mass.
1,877,897. **Fowl Anti-Feather Pulling Device.** J. Kosten and F. Zuidema, both of Grand Rapids, Mich.
1,877,988. **Pneumatic Tire.** H. P. Schrank, Akron, assignor to Seiberling Rubber Co., Barberton, both in O.
1,878,063. **Liquid Fuel Container Protective Envelope.** J. A. Todd, Sioux City, Iowa.
1,878,181. **Refrigerator Lid.** J. R. Replogle, assignor to Kelvinator Corp., both of Detroit, Mich.
1,878,411. **Tire Deflation Signal.** H. T. Lambert, Johnstown, Pa.; I. G. Lambert, executor of said H. T. Lambert, deceased.
1,878,440. **Emergency Brake Pad.** J. F. Duffy, assignor to Duffy Mfg. Co., both of Holland, Mich.
1,878,505. **Fluid Pressure Connection.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.
1,878,715. **Bladder Air Valve.** S. Saul, Aachen, Germany.
1,878,917. **Tire Fluid Pressure Gage.** W. Turner, Sheffield, England.

Dominion of Canada

325,248. **Pneumatic Sole.** W. B. Marling, Broadstairs, England.
325,323. **Horseshoe.** Les Etablissements Chanoux, Albisson & Cie (Société Anonymé), assignee of L. Chanoux and L. Albisson, co-inventors, all of Orange, Vaucluse, France.
325,351. **Stocking.** Nolde & Horst Co., assignee of J. H. Vogt, both of Reading, and H. McAdams, Philadelphia, co-inventors, all in Pa., U. S. A.
325,409. **Footwear.** Dunlop Rubber Co., Ltd., London, England; and Anode Rubber Co. Ltd., St. Peter's Port, Channel Islands; assignees of E. A. Murphy, Birmingham, England.
325,413. **Shoe.** A. A. Williams, Hollis-ton, assignee of J. U. Bergquist, Hudson, both in Mass., U. S. A.
325,426. **Brake Shoe and Lining.** S. C. Clark, Birmingham, and H. M. Koelliker, Pontiac, co-inventors, both in Mich., U. S. A.
325,514. **Friction Shock Absorber.** Canadian Westinghouse Co., Ltd., Hamilton, Ont., assignee of H. F. Woernley, Wilkinsburg, Pa., U. S. A.
325,527. **Glove Lining.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of G. J. Foley, Naugatuck, Conn., U. S. A.
325,528. **Footwear.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of E. C. Heilhecker, Bristol, R. I., U. S. A.
325,552. **Armored Cable.** National Electric Products Corp., New York, N. Y., assignee of O. A. Frederickson, Ben Avon, Pa., both in the U.S.A.
325,660. **Nonslipping Carpet.** C. H. Hacklander, Wermelskirchen, Germany.
325,676. **Membrane Decanting Siphon.** O. Peters, Chemnitz, Germany.
325,806. **Tire Valve Chuck and Gage.** A. Schrader's Son, Inc., assignee of J. Wahl, both of New York, N. Y., U. S. A.
325,827. **Tie Rod End Bearing Assembly.** Thompson Products, Inc., Cleveland, O., assignee of G. H. Hufferd and M. P. Graham, co-inventors, both of Detroit, Mich., all in the U. S. A.
325,910. **Railway Car Truck Assembly.** W. C. Klein, Allentown, Pa., U. S. A.

United Kingdom

371,955. **Emergency Tire.** R. J. Stirling, Kent.
372,135. **Hair Waver.** K. Ströher, assignee of F. Ströher, both of Vogtland, Germany.
372,643. **Elastic Top Sock.** L. J. Byer, Brookline, Mass., U. S. A.
372,901. **Driving Belt.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.
372,963. **Tire Valve.** F. H. Watson, Jonesboro, Ark., U. S. A.
373,059. **Vehicle Body.** M. J. Daste, Seine, France.
373,266. **Tire Nonskid Material.** E. De Bruijn, Roslyn, Pa., U. S. A.
373,302. **Flexible Tube.** Compagnia Italiana Tubi Metallici Flessibili, Turin, Italy.
373,347. **Tire Valve.** A. Ahlers, Düsseldorf, Germany.
373,357. **Printers' Blanket.** P. M. Matthew, Victoria Rubber Mills, Edinburgh, Scotland.
373,411. **Saddle.** Dunlop Rubber Co., Ltd., London; G. J. Livings, Manchester; and R. Truesdale, of Dunlop Rubber Co., Ft. Dunlop.
373,569. **Wheel Guard.** Dunlop Rubber Co., Ltd., London, and F. Fellowes, of Dunlop Rubber Co., Birmingham.
373,685. **Tire Valve.** F. H. Watson, Jonesboro, Ark., U. S. A.
373,714. **Boot Protector.** P. May, Glasgow, Scotland.
373,903. **Vacuum Cleaner Nozzle.** W. Schoeller, Berlin, Germany.
373,912. **Tire.** Magyar Ruggyantaárugyár Reszvenytarsasag, Budapest, Hungary.

Germany

558,123. **Ball.** O. Wehrle, Jr., Emmendingen i. Baden.
558,215. **Shoe.** I. Goth, Berlin.
558,559. **Syringe.** W. Baum and P. Felgentreff, both of Egeln.
558,587. **Dental Plate.** J. Schuth, Mainz.
558,718. **Heel.** H. M. Tyner, New York, N. Y., U. S. A. Represented by B. Kugelmann, Berlin.
558,800. **Wheel.** Goodyear Tire & Rubber Co., Akron, O., U. S. A. Represented by G. Lotterhos, Frankfurt a.M., and H. Mortensen and W. von Sauer, both of Berlin.
558,804. **Heel.** O. Herfeld, Zurich, Switzerland. Represented by E. Moldenhauer, Dusseldorf.

TRADE MARKS

United States

296,813. Label bearing representation of some toys and the word: **"Sanoval."** Crib sheets. S. H. Kress & Co., New York, N. Y.
296,839. **King Plus.** Golf balls. India Rubber, Gutta Percha & Telegraph Works Co., Ltd., London, England.
296,842. Label bearing representation of buildings and the words: **"Gents, J S Co."** Prophylactic articles. J. Smith, Sloan, N. Y.
296,894. Representation of a dreadnaught and the word: **"Dred-not."** Prophylactic article. I. J. Friedland, doing business as Specialty Sales Co., Atlanta, Ga.
296,895. **Anchor.** Prophylactic articles. J. Schmid, New York, N. Y.
296,913. **Relio.** Insulating tape. United States Rubber Co., New York, N. Y.

American Rubber Executives

The brief personal sketches to be published on this page will eventually form a valuable record of the part played by American rubber executives in the progress of the industry. Presidents, vice presidents, secretaries, treasurers, sales and advertising managers, and other "key-men" are invited to send us their biographical data.

Charles M. Baldwin, rep. *b.* Chicago, Ill., Apr. 24, 1902; Harrison Tech. High Sch., Lewis I. T.; Binney & Smith Co., Chicago, Ill., 1922-29; to date, Midwestern rep., United Carbon Co., Charleston, W. Va. *Member:* Chicago Paint, Oil, & Varnish Assn.; A. C. S.; A. F. & A. M.; Lake Shore Athletic and Chicago-Dearborn clubs. *Address*: 844 Rush St., Chicago.

Harry E. Beane, dist. mgr. *b.* Oct. 27, 1895, Bowling Green, Ky.; Bowling Green public and high schs.; Western Ky. State College, Bowling Green, 1915; Westinghouse students' engrg. course, 1916-17; engr. supply dept., 1918, industrial sales engr., 1919, Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.; sales and service engr., Bristol Co., Pittsburgh, Pa., 1920-25; to date, dist. mgr., Bristol Co., Pittsburgh, and supvr. Akron office and Akron Service Laboratory, Bristol Co. *Member:* Amer. Inst. of Elec. Engrs. *Address:* 1830 Koppers Bldg., Pittsburgh.

Durward M. Browning, pur. agt. *b.* Felix, N. Mex., Feb. 13, 1904; U. of Ariz., A. B., U. of S. Calif., 1927; sec. to chief engr., Inspiration Consolidated Copper Co., Inspiration, Ariz., 1924-25; sec. to office mgr., Stauffer Chemical Co., 1927; pur. agt., Stauffer Chemical Co., Dominguez Chemical Co., and Pacific Hard R. Co., 1927 to date. *Member*: Purchasing Agents Assn., Jonathan Club, and college fraternity. *Address:* 1235 Rives-Strong Bldg., Los Angeles, Calif.

John E. Caskey, asst. fact. mgr. *b.* Fairmount, Ind., Feb. 29, 1892; Fairmont High Sch., A. B., Ohio State U., 1915; foreman, 1915; production mgr., 1920; asst. supt., 1928; supt., 1930; asst. factory mgr., Naugatuck Chemical Co., Naugatuck, Conn., 1931 to date. *Address*: 90 Trowbridge Place, Naugatuck, Conn.

Paul A. Frank, pres., dir. *b.* Akron, O., Oct. 22, 1896; Akron public schs.; specializing in promotion of new processes and products, B. F. Goodrich Co., 1915-23; pres., Electrolytic Antiseptic, Inc., dir., National Rubber Machinery Co., 1932. *Address*: Ridge Rd., Fairlawn, O.

Frank S. Griesinger, br. mgr. *b.* Medina, O., Apr. 27, 1889; Medina H. S., 1908; E. E. in M. E., Ohio State U., 1913; Greford Motor Co., Elyria, O., 1913; service mgr., R. W. Kuhms Co., Dayton, O., 1914; Goodyear T. & R. Co. since 1915: truck tire sales, Akron, O., 1915; br. mgr., St. Louis, Mo., 1917; dist. mgr. truck tires, Chicago, Ill., 1921; br. mgr., Des Moines, Ia., since 1921. *Member:* Masons, Shrine Consistory, Delta Upsilon, Adv. Club. *Address:* 1022 Locust St., Des Moines.

Ernest Jacoby, broker *b.* Nov. 6, 1880, Manchester, Eng.; Manchester Gr. Sch., Hereford County Coll., Eng.; commission house, Manchester, 1896-1900; Otto Meyer, salesman, Boston, Mass., 1900-04; New Eng. rep., A. T. Morse & Co., Boston, 1904-09; New Eng. rep., U. S. Rubber Reclaiming Works, 1909-11; broker, crude rubber, gutta percha, liquid latex, etc., 1911 to date. *Member*: Exchange Club, Masons. *Address:* 79 Milk St., Boston, Mass.

Clinton E. Little, v. pres. *b.* Columbia, Tolland Co., Conn.; bootmaker, Colchester Rubber Co.; cutting room, Bourne Rubber Co., Prov., R. I.; office work and salesman, C. S. Sisson Co., Prov.; salesman, Beacon Falls Rubber Shoe Co., 1899; salesman, Lambertville Rubber Co., 1903; br. mgr., Beacon Falls Rubber Shoe Co., New York, N. Y., 1906; gen'l sales mgr., Beacon Falls; mgr. College Point factory during war in addition to other duties; mgr., soles and heels div., U. S. Rubber Co., when U. S. took over Beacon Falls; pres., Beacon Falls Rubber Shoe Co., 1925-June, 1931; v. pres. in charge of sales, Converse Rubber Co., Malden, Mass., 1931-1932; executive v. pres., Servus Rubber Co., Rock Island, Ill., Fall, 1932. *Member:* charter member, New York Sales Mgrs. Club, former dir., Naugatuck National Bank. *Address:* business, Servus Rubber Co., Rock Island.

Joseph E. Mayl, sales mgr. *b.* Dec. 15, 1888, Dayton, O.; elem. and high schs.; A. B., U. of Dayton, 1906; U. of Pa., 1912; eastern div. mgr., Firestone T. & R. Co., 1920-21; western div. mgr., 1922-24; Goodyear T. & R. Co. since 1925: mgr. bus tire div., 1925-26; asst. mgr. truck & bus tire dept., 1926-27; mgr. truck & bus tire dept., 1928; southern div. mgr., 1929-30; sales mgr., tire depts., 1931 to date. *Address:* business, Goodyear Tire & Rubber Co., Akron, O.

Edward J. Samuel, adv. mgr. *b.* Lancashire, England; Cowley Gr. Sch.; mgr. sales promotion and organization, 1911-24, adv. mgr., London, Eng., 1912-14, in Akron, Chicago, and New York offices, Goodyear T. & R. Co., 1914-24; mgr. truck tire dept., Ajax T. & R. Co., 1924-27; merchandising and adv. mgr., Fisk Rubber Co., 1927 to date. *Member*: Springfield Adv. Club. *Address*: 96 Firglade Ave., Springfield, Mass.

Walton R. Smith, sales mgr. *b.* Duarte, Calif., Jan. 12, 1900; A. B., Pomona College, 1921; M. B. A., Harvard U., 1923; credit mgr., Hood R. Co., Los Angeles, Calif., 1923-24; salesman, Hood R. Co., 1924-25; dist. mgr., heel and hard rubber divs., Hood R. Co., Pacific Coast, 1925-30; v. pres. and sales mgr., United R. Corp., San Francisco, Calif., 1930-32; sales mgr., Pacific Hard R. Co., Los Angeles, 1932. *Address*: 715 Rives-Strong Bldg., Los Angeles.

D. D. Spence, dist. mgr. *b.* Aug. 27, 1901, Decatur, Ill.; Decatur H. S.; B. S. in Commerce, Northwestern U., 1925, Evanston, Ill.; Firestone T. & R. Co. since 1925: training class, Akron, O., 1925; field training, Salt Lake City, Utah, 1925; pneumatic tire sales, Akron, 1926; salesman and truck tire rep., San Francisco, Calif., 1926-27; eastern div. truck tire rep., 1928; sales dept., Los Angeles, Calif., 1929; asst. mgr., Seattle, Wash., 1930; asst. mgr., San Francisco, 1930; dist. mgr., Firestone T. & R. Co. of Calif., Salt Lake City, 1931 to date. *Member:* Lambda Chi Alpha, University and Commercial clubs. *Address:* business, Firestone Tire & Rubber Co. of Calif., 308 W. Third South St., Salt Lake City, Utah.

Henry S. Sturtevant, engr. *b.* 1895, Concord, N. H.; M. E., Worcester Poly. Inst., 1916; engr. SKF Ball Bearing Co., Hartford, Conn., 1916-19; asst. chf. engr., 1919-21, chf. engr., 1922-29, U. S. R. Co., Hartford, Conn.; chf. engr., U. S. R. Co., Detroit, Mich., 1929-31. *Member*: A. S. M. E. *Address*: 83 Woodrow St., Hartford.

LeRoy Wagner, sales and br. mgr. *b.* Middletown, O., Mar. 29, 1879; grammar sch., Dayton and Cincinnati, O.; div. salesman, Miller Rubber Co., Oct., 1898; transferred to Pacific Coast, 1899; br. mgr., San Francisco, Calif., 1910 to date; asst. sec'y and mgr., Miller Rubber Co. of Calif. Corp., 1910-28; dist. sales mgr., western div., to date. *Member:* Elks, Athens Athletic Club, Oakland, Calif. *Address:* business, 450 Ninth St., San Francisco, residence, 627 Santa Ray Ave., Oakland.

Joseph H. Weiner, br. mgr. *b.* Dec. 14, 1890, Denver, Colo.; West End H. S., Denver; A. B., Denver U., 1912; Colorado Demurrage Bureau, Denver, 1912-13; retail shoe business, Denver, 1913-16; Gates Rubber Co., Denver, 1916-18; Walling Tire Co., Denver, 1918-19; Goodyear T. & R. Co., br. mgr., Butte, Mont., 1920; br. mgr., Salt Lake City, Utah, 1923; br. mgr., Seattle, Wash., 1928 to date. *Member:* Masons, Shrine, Seattle Rotary and Broadmoor Golf clubs. *Address:* business, Goodyear Tire & Rubber Co. of Calif., Inc., 971 Thomas St., Seattle.

Market Reviews

CRUDE RUBBER

IN A rather uneventful month rubber prices lost ground along with other commodities, but held steady for the last 2 weeks. Most of the recent rise has been cancelled, and quotations are within striking distance of their lowest levels. Aside from lack of speculative support, no definite cause for the decline can be pointed out—rather might one say that there was no definite reason for the rise. Speculative activity accounted for most of the gain, as evidenced by the large number of transactions on the Exchange, and the low rate of consumption.

The statistical position of rubber has undergone few marked changes in the last few months. Estate production is being maintained, and it is only native production in the Dutch Indies that has declined to any extent.

The supply of rubber on hand in the United Kingdom is steadily being pared down to a manageable size, with the estimate now being that stocks on hand are sufficient for about 5 months' supply. In the United States is a different story; but although stocks have increased to 365,789 tons, well over a year's supply, this fact is not so gloomy as it looks on the face of things. It is generally agreed that 75%, if not more, of the stock on hand is held by a few large manufacturers. Smaller and medium-sized firms are buying hand-to-mouth until the future course of events is clearer.

September consumption was also a surprise to traders. Private estimates had put it at 20,000 tons and under, some going as low as 17,500 tons, but the actual figure of 22,491 tons was a pleasant surprise.

The cause of the low rate of consumption, obviously, is the stagnant automobile market. For the week ended October 22 the *Times'* automobile index, adjusted for seasonal variations, fell to a new record low level. At 14.4 the index was 0.2 lower than the previous record of 14.6 reached in a week of the Fall of 1931. Most manufacturers have either curtailed production sharply or stopped altogether. The object is twofold: first, reduction of dealers' stocks of old models, and, second, preparations for introducing their new 1933 models.

RUBBER BULL POINTS

1. October shipments from Malaya are put at 37,500 tons against 41,973 in September.
2. Far Eastern census figures put large and small estate production for September at 33,315 tons against 36,408 in August and 36,833 in September, 1931.
3. London and Liverpool stocks are almost 25% less than at this time last year.
4. The large United States stocks of rubber are mainly held by a few big manufacturers.
5. While pneumatic casings on hand increased 7.4% during August, they were 25.1% below those of August 31, 1931.
6. United States consumption of rubber during September was 22,491 tons against 22,372 in August and 23,638 tons in September, 1931.
7. United States rubber arrivals were 29,509 tons during September, compared with 34,219 tons in August and 40,505 tons in September, 1931.
8. Dutch East Indies shipments in August were 17,199 tons against 18,472 in July and 22,437 in August, 1931.
9. Dealers' stocks in the Far East totaled 24,297 tons at the end of September against 24,178 tons at the end of August and 39,368 tons on September 30, 1931.
10. Harbor board stocks at 4,353 tons on September 30 were above the 3,917 tons on August 31, but below those of 7,657 tons on September 30, 1931.

RUBBER BEAR POINTS

1. Automobile production is abnormally low as manufacturers cease production on old models and prepare for 1933 exhibits. Production in September was 84,144 vehicles, 6,183 less than in August and 56,425 under September a year ago.
2. Based on returns from 28 states, R. L. Polk & Co. put September registration of new passenger cars at 78,400 against 93,457 in August and 124,875 in September, 1931.
3. August shipments of pneumatic casings were 46.5% below those of last August; production dropped 20.9% for the same period.
4. Stocks on hand in the United States on September 30, 1932, were 365,789 tons against 357,342 the month before and 254,324 tons a year ago.
5. September Ceylon shipments were 4,361 tons in September, a substantial drop from the 5,585 tons in August, but higher than the 4,195 tons in September, 1931.

The tire industry is naturally affected by the low output of automobiles, and further by the fact that car owners are making their old tires do duty far beyond the normal span of use. Here, too, stocks on hand are at a low level; which condition bodes well for the industry when demand is reawakened.

In the Outside Market price declines were small, but so was the amount of business. Akron buyers were reported in the market, the first time in some months, and early in the month medium-sized firms bought on reactions in the market; but fill-in orders and hand-to-mouth buying still prevail.

The actuals market, like the Exchange market, and all others for that matter, is biding time until the election is over. Business in general seems to be at a halt until it is definitely known what the results of the election will be.

Week ended October 1. Speculators gave the market most of its business during the week, but even at that there were several dull days. On Wednesday 800 tons constituted the day's business; on Friday it dropped to 470 tons and on Saturday to 330 tons.

The market turned downward under speculative selling and in sympathy with outside markets. Important news was nil during the week, and the market just drifted to levels from 9 to 18 points.

October closed at 3.68¢ against 3.77¢ the week before; December, 3.81 against 3.96; January 3.87 against 4.03; March 3.99 against 4.17; May 4.10 against 4.24.

The Outside Market had a dull week. Business came in dribbles. Prices changed only fractionally for the week, ending at their best levels in response to firmer cables from primary centers.

Nearbys sold at 3 11/16¢; November-December from 3 13/16 to 3 7/8 against 3 13/16 to 4 the week before; January-March 4 1/16 against 4 1/16; and April-June 4 1/4 unchanged.

Week ended October 8. After the publication of the September report of shipments from Malaya the rubber market was influenced principally by the outside markets. The decline in the cotton market on Saturday due to a larger crop forecast by the government may have further influence next week since the report came out last Saturday morning.

The market as a whole was listless and subject to speculative activity. On Monday, with a turnover of only 480 long tons, the market suffered losses of 16 to 22 points, the largest of any single day of the week.

New York Outside Market—Spot Closing Rubber Prices—Cents Per Pound

	September, 1932					October, 1932															
	26	27	28	29	30	1	3	4	5	6	7	8	10	11	12*	13	14	15	17	18	19	20	21	22
Ribbed Smoked Sheet	3 11/16	3 3/4	3 11/16	3 5/8	3 5/8	3 11/16	3 9/16	3 9/16	3 1/2	3 1/2	3 1/2	3 7/16	3 3/8	3 1/2	...	3 3/8	3 3/8	3 3/8	3 5/16	3 5/16	3 3/8	3 3/8	3 3/8	3 3/8
No. 1 Thin Latex Crepe	4 3/8	4 5/16	4 1/4	4 5/16	4 5/16	4 1/4	4 1/16	4 1/8	4 1/16	4 1/16	4	4	3 15/16	4 1/16	...	4	4	4	3 7/8	3 7/8	4	4	4	4
No. 1 Thick Latex Crepe	4 3/8	4 5/16	4 1/4	4 5/16	4 5/16	4 1/4	4 1/16	4 1/8	4 1/16	4 1/16	4	4	3 15/16	4 1/16	...	4	4	4	3 7/8	3 7/8	4	4	4	4
No. 1 Brown Crepe	3 5/16	3 1/2	3 7/16	3 3/8	3 3/8	3 5/16	3 5/16	3 5/16	3 1/4	3 1/4	3 1/4	3 3/16	3 1/8	3 1/4	...	3 1/8	3 1/8	3 1/8	3 1/16	3 1/16	3 1/8	3 1/8	3 1/8	3 1/8
No. 2 Brown Crepe	3 1/2	3 7/16	3 3/8	3 5/16	3 5/16	3 3/8	3 1/4	3 1/4	3 3/16	3 3/16	3 3/16	3 1/8	3 1/16	3 1/8	...	3 1/16	3 1/16	3 1/16	3	3	3 1/16	3 1/16	3 1/16	3 1/16
No. 2 Amber	3 5/16	3 1/2	3 7/16	3 3/8	3 3/8	3 5/16	3 5/16	3 5/16	3 1/4	3 1/4	3 1/4	3 3/16	3 1/8	3 1/4	...	3 1/8	3 1/8	3 1/8	3 1/16	3 1/16	3 1/8	3 1/8	3 1/8	3 1/8
No. 3 Amber	3 1/2	3 7/16	3 3/8	3 5/16	3 5/16	3 3/8	3 1/4	3 1/4	3 3/16	3 3/16	3 3/16	3 1/8	3 1/16	3 1/16	...	3 1/16	3 1/16	3 1/16	3	3	3 1/16	3 1/16	3 1/16	3 1/16
No. 4 Amber	3 3/8	3 5/16	3 1/4	3 5/16	3 5/16	3 1/4	3 1/8	3 1/8	3 1/16	3 1/16	3 1/16	3	2 13/16	3 1/16	...	2 7/8	2 7/8	2 7/8	2 13/16	2 13/16	2 7/8	2 7/8	2 7/8	2 7/8
Rolled Brown	3 1/8	3 1/16	3	2 13/16	2 13/16	3	2 7/8	2 7/8	2 13/16	2 13/16	2 13/16	2 3/4	2 11/16	2 13/16	...	2 11/16	2 11/16	2 11/16	2 5/8	2 5/8	2 11/16	2 11/16	2 11/16	2 11/16

*Holiday.

At the close on Saturday, the October position sold at 3.28¢, compared with 3.68¢ the week before; December 3.36 against 3.81; January 3.44 against 3.87; March 3.60 against 3.99; May, 3.68 against 4.10; and July, 3.75 against 4.20. Losses were 39 to 45 points.

As H. Hentz & Co. said recently, "Rubber prices will probably hold at about these levels until late in the fall unless some speculative advance takes place in the securities market."

Business was hard to get in the Outside Market, and it would have been a meagre week except that 2 large Akron buyers were reported in the market. Naturally their business was distributed so that traders did a little at least. The lower prices were said to be the incentive, with fair reductions being made from last week.

All the 1932 positions were quoted at 3 7/16¢ this week against 3 11/16¢ for October last week, 3 11/16 for November, and 3 7/8 for December; January-March 3 5/8 against 4 1/16; and April-June 3 11/16 against 4 1/4.

Automobile production is now approaching the low record level achieved in the week of November 7, 1931. Last week the *Times'* index stood at 19.2 against 24.2 for the preceding week and 38.6 for the same week last year. The drop in output is generally ascribed to the fact that manufacturers are preparing to issue new models for 1933, and they are making every effort to clear dealers' stocks, which are already said to be the smallest on record.

Week ended October 15. With the holiday interrupting business in the middle of the week and with stocks and commodity markets selling lower, the rubber market was unchanged to 5 points lower in a quiet market. Commission house liquidation was offset by the consumption report which showed an unexpectedly large figure for September.

At the close on Saturday, October sold at 3.27¢, compared with 3.28¢ the week before; December 3.36, unchanged; January 3.43 against 3.44; March 3.57 against 3.60; May 3.65 against 3.68; and July 3.70 against 3.75.

Manufacturers used 22,491 tons of crude rubber during September, compared with 22,372 long tons in August, an increase of 0.5%. Private estimates had put the figure at about 20,000 tons, with some going as low as 17,500 tons, so that the actual report was a pleasant surprise.

Imports for the month were 29,509 long tons, a drop of 13.8% under August of this year and of 27.1% under September, 1931. Domestic stocks, however, increased 2.4% over August to reach 365,789 long tons on September 30. Last September stocks were 43.8% lower than they now are. The United States stocks represent about 14½ months' supply, compared with stocks for about 5 months in the United Kingdom.

On the reactions in prices in the last week the Outside Market experienced a little more activity. Much short covering was in evidence as well as interest by large buyers.

Prices on the nearby positions were unchanged, but future contracts were lower. The 1932 positions remained at 3 7/16¢ for ribbed smoked sheets, and January-March at 3 5/8; but April-June was 3¼ against 3 11/16; and July-September 3 7/8 against 4¢ last week.

Week ended October 22. Almost unchanged in prices, the rubber market went through a dull week. Sales on 3 days of the week were only 260 tons, and on Saturday 9 lots, or 90 long tons, comprised the day's business. The slight changes in price registered during the week were mostly a result of mild speculative buying. On Wednesday the market showed the best gains, totaling 8 to 12 points, but they were primarily caused by a good stock market, backed by firmness in the other commodities.

Changes for the week were from 3 points down to 2 points on the upside. October sold at 3.29¢, compared with 3.27¢ the week before; December 3.36, unchanged; January 3.43, unchanged; March 3.55 against 3.57; May 3.62 against 3.65; and July 3.69 against 3.70.

Malayan shipments for the first half of October were 18,000 tons; so the month's total is not expected to exceed 37,500 tons. In September these shipments were 41,973 tons and in September, 1931, 44,336 tons.

The Far East census figure showed production on large and small estates in September at 33,315 tons, compared with 36,408 tons in August and 36,833 tons in September, 1931. Production normally shows an increase at this time of the year; so the figures were not unwelcome. Estate and dealer stocks also declined.

The August tire report, released by The Rubber Manufacturers Association, showed an increase in inventory despite a slight increase in sales. Shipments during August were 10.4% higher than in July, but 46.5% below those in August, 1931. Production decreased 14.6% under July and 20.9% under August last year, but casings in the hands of manufacturers on August 31 increased 7.4% over the previous month, although they were 25.1% below the stocks held on August 31, 1931.

London and Liverpool stocks are expected to drop 600 tons for this week.

Prices held steady in the Outside Market, with nearbys unchanged at 3 7/16¢; January-March unchanged at 3 5/8; April-June 3 11/16 against 3¾ last week; and July-September 4¢ against 3 7/8.

The week was uneventful. Factory business was principally of a fill-in nature as it has been for a couple of weeks. Akron bought some rubber, but not so much as in the previous sessions.

The *Times'* automobile index was 16.6 for the October 15 week against 16.7 for

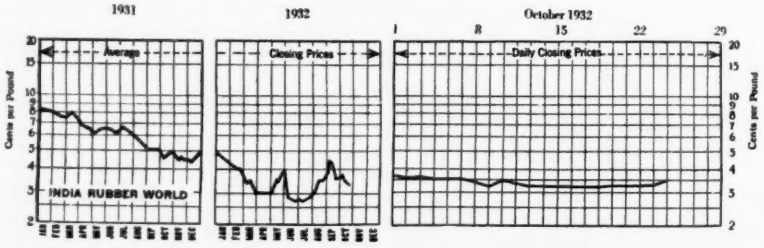
(*Continued on page 74*)

New York Quotations

New York outside market rubber quotations in cents per pound

Plantations	Oct. 26, 1931	Sept. 26, 1932	Oct. 26, 1932
Rubber latex...*gal.*	69	51	51
Sheet			
Ribbed, smoked, spot	4 1/16/4 3/4	3 11/16/4	3 1/4/3 5/8
Nov.-Dec.	4 3/4	..	3 1/2/3 5/8
Jan.-Mar.	4 7/8	4 1/8	3 11/16/3 3/4
Apr.-June	5 /5 1/16	4 1/4/4 5/16	3 3/4/3 7/8
CREPE			
No. 1 thin latex, spot	5 1/8/5 1/4	4 1/2	4 1/8/4 1/4
Nov.-Dec.	5 1/4	..	4 1/8/4 1/4
Jan.-Mar.	5 5/16/5 3/8	4 5/8/4 11/16	4 1/4/4 5/16
Apr.-June	5 3/8/5 1/2	4 3/4/4 7/8	4 3/8/4 1/2
No. 2 Amber, spot.	4 1/2/4 5/8	3 11/16/3 3/4	3 1/4/3 5/16
Nov.-Dec.	4 5/8	..	3 1/4/3 5/16
Jan.-Mar.	4 5/8/4 7/8	3 7/8	3 3/8/3 1/2
Apr.-June	4 3/4/5	4 1/16	3 1/2/3 5/8
No. 3 Amber, spot.	4 3/8/4 1/2	3 5/8	3 5/16/3 1/4
No. 1 Brown	4 1/16	3 5/8/3 3/4	3 1/4
No. 2 Brown	4 5/8	3 5/16/3 5/8	3 5/16
Brown, rolled	4 /4 1/8	3 7/16/3 1/4	2 7/8/3
PONTIANAK			
Bandjermasin	6	5	5
Pressed block	9	6 3/4	6 3/4
Sarawak	6	5	5
PARAS			
Upriver fine	5 3/4	7 3/4	7 1/4
Upriver fine	*9 1/2	*10 1/2	*10 3/4
Upriver coarse	†4 1/2	†4	†3 1/2
Upriver coarse	*5 1/4	*5 1/2	*4 3/4
Islands fine	†5	†6 1/2	†6 1/2
Islands fine	*9	*10	*10
Acre, Bolivian, fine.	5 7/8	7 1/2	7 1/4
Acre, Bolivian, fine.	*10	*11	*10 1/2
Beni, Bolivian	6	7 7/8	7 1/2
Madeira, fine	5 3/4	7 3/4	7 1/4
CAUCHO			
Upper ball	†4	†4	†3 1/2
Upper ball	*5 1/4	*5 1/2	*4 3/4
Lower ball	†3	†3 1/2	†3
Manicobas			
Manicoba, 30% guar.	†4	†2 1/2	†2 1/2
Mangabiera, thin sheet	†4	†2 1/2	..
Guayule			
Duro, washed and dried	13	12	12
Ampar	14	13	13
Africans			
Rio Nuñez	...	†3 3/4	3 3/4
Black Kassai	...	†7 1/2	6 1/2
Manihot cuttings	...	†3	3 1/2
Prime Niger flake.	...	15	15
Gutta Percha			
Gutta Siak	10 1/2	6 1/2	6 3/4
Gutta Soh	18	13	14
Red Macassar	2.00	1.50	1.25
Balata			
Block, Ciudad Bolivar	23	16	16
Manaos block	23	18	16
Surinam sheets	45	28	26
Amber	50	30	29

*Washed and dried crepe. Shipments from Brazil. †Nominal.



New York Outside Market—Spot Closing Prices Ribbed Smoked Sheets

RUBBER SCRAP

DEPENDENT as it is on larger industries, the scrap market developed an easier tone during October, reflecting conditions in all other markets. Most of the business is in tires and tubes, and like last month very little was done in scrap. Mechanical prices are influenced by tires, and it would take a sizable increase in tires before mechanicals changed. Since tube and tire quotations were lower, mechanicals were dull and unchanged.

Consumption was fair during the month, but hand-to-mouth buying is still the rule. Offerings are few and difficult to sell when they appear. Many manufacturers are marking time until the political situation is determined.

Owing to the efforts of the National Association of Waste Material Dealers, Inc., carriers have agreed to establish reduced rates on scrap rubber in carloads throughout Official Classification territory on basis of 20% of first class, minimum weight 40,000 pounds, effective January 1, 1933.

BOOTS AND SHOES. The low prices remained unchanged, and the small returns made for light collections. The demand is good, but collectors are not offered enough money to supply the demand.

INNER TUBES. Export demand continues good for tubes, but domestic business is slow. Prices, generally considered at their lowest, remained unchanged.

TIRES. There is a lull in the automobile and tire business, which will improve as manufacturers bring out new models. Mixed beads declined 25¢, and black auto peelings were shaded from 50¢ to $1. Car owners are still making the most of their old tires, but there is a limit to this action; and the replacement demand which is piling up bodes well for the industry.

MECHANICALS. Prices were unchanged in a dull market.

HARD RUBBER. Little demand was expressed for this grade.

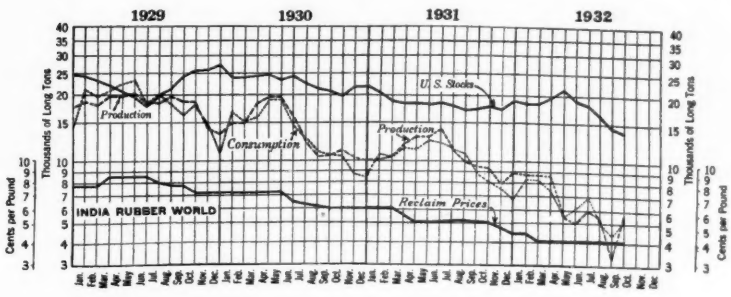
CONSUMERS' BUYING PRICES

Carload Lots Delivered Eastern Mills

October 26, 1932

	Prices
Boots and Shoes	
Boots and shoes, black 100 lb.	$0.75/$0.90
Colored 100 lb.	.625 /.75
Untrimmed arctics. 100 lb.	.50
Inner Tubes	
No. 1, floating lb.	.02¾/.03
No. 2, compound lb.	.01⅝/.01¾
Red lb.	.01⅝/.01¾
Mixed tubes lb.	.01¼
Tires (Akron District)	
Pneumatic Standard	
Mixed auto tires with beads ton	7.50/ 7.75
Beadless ton	11.25/11.50
Auto tire carcass ton	8.00/ 9.00
Black auto peelings ton	18.00/19.00
Solid	
Clean mixed truck ton	26.50/27.00
Light gravity ton	28.00/29.00
Mechanicals	
Mixed black scrap lb.	.00⅝/.00¾
Hose, air brake ton	7.50/ 8.00
Garden, rubber covered lb.	.00⅜/.00½
Steam and water, soft lb.	.00⅜/.00½
No. 1 red lb.	.01⅛/.01¼
No. 2 red lb.	.01 /.01⅛
White druggists' sundries lb.	.01¼/.01½
Mechanical lb.	.00¾/.00⅞
Hard Rubber	
No. 1 hard rubber lb.	.06⅛/.06½

RECLAIMED RUBBER



Production, Consumption, Stocks, and Price of Tire Reclaim

United States Reclaimed Rubber Statistics—Long Tons

Year	Production	Consumption	Consumption Per Cent to Crude	United States Stocks*	Exports
1930	157,967	153,497	41.5	24,008	9,468
1931	132,462	125,001	35.7	19,257	6,971
1932					
January	8,753	8,440	30.2	18,712	475
February	8,731	8,332	27.6	18,659	484
March	8,613	7,420	26.7	19,726	476
April	5,555	5,561	21.4	21,525	370
May	5,024	6,070	20.8	18,889	188
June	5,923	7,031	18.0	16,870	259
July	5,417	5,131	18.2	16,333	240
August	3,264	4,382	19.6	14,629	....
September	5 308	5,235	23.3	14,059	265

*Stocks on hand the last of the month or year.

Compiled by The Rubber Manufacturers Association, Inc.

SEPTEMBER statistics of reclaim rubber are convincing proof that manufacturers are acknowledging, through their own experiences, that reclaim has a distinct place in the production of finished goods, along with a dozen other standard productions like carbon black, zinc oxide, mineral rubber, etc.

The ratio of reclaim used to crude in September jumped to 23.3%, as compared with 19.6% in August, and a similar or better showing is expected for October. The ratio has been climbing steadily since June, when it reached a low point of 18.0%. It bears out what was said last month in this column to the effect that manufacturers who were attracted by the low price of crude rubber have learned that the low cost of raw material may not be an unmixed blessing. They have discovered an all-crude mixture adds to production costs and does not insure a uniform quality in the finished product as does reclaim. It has also become evident that it is sometimes hard to obtain a uniform grade of crude rubber over a long period; and when a manufacturer wants to produce a product of consistently high quality, he realizes more and more that to do so, reclaim is a necessary ingredient.

Consumption of reclaim jumped 853 tons during September, while that of crude increased only 119 tons, or a percentage increase of 19% in reclaim against less than 0.5% in crude. This demand for reclaim is borne out in another way. Manufacturers ordering reclaim in the last month have sent orders from a scattered territory all over the country, showing that the movement is general. Several in fact have asked that their interests be protected into next year, realizing that present prices for this necessary product are at record values, but not likely to remain so long as other firms join the movement.

Most lines report better business: heel and sole men are quite busy; the shoe industry is doing well, although cheap imports from Japan and Czechoslovakia are playing havoc on cheap grades; some grades of wire are selling well, but the others depend on a revival in the building trade; tire business is dull, but auto topping is being sold in good quantities. With stocks at a low point of 14,059 tons and a trend toward use of reclaim, the outlook is cheerful. Prices remained unchanged.

New York Quotations

October 26, 1932

High Tensile	Spec. Grav.	Cents per Lb.
Super-reclaim, black	1.20	5 /5¼
red	1.20	4¾/5
Auto Tire		
Black	1.21	3¾/4
Black selected tires	1.18	4 /4¼
Dark gray	1.35	5 /5¼
White	1.40	6 /6¼
Shoe		
Unwashed	1.60	4¾/5
Washed	1.50	5½/5¾
Tube		
No. 1	1.00	6½
No. 2	1.10	4½/4¾
Truck Tire		
Truck tire, heavy gravity	1.55	5 /5¼
Truck tire, light gravity	1.40	5¼/5½
Miscellaneous		
Mechanical blends	1.60	3 /3½

COMPOUNDING INGREDIENTS

PRODUCTION in the tire and mechanical rubber goods divisions of the industry is considerably restricted, but output by the proofing, footwear, soles and heels, and druggists' sundries lines is reported active and of good volume. However the demand by the industry in general for compounding ingredients is only fair.

In the matter of prices very few changes are noted. Late in September the price of commercial grades of litharge in casks was reduced from 6 to 5½¢ a pound effective October 5. The following week the price was advanced to 5¾¢ because of the rise in pig lead. The price of rubber solvents fluctuated slightly during October and on the 24th was advanced by Group 3 refineries to 5¾-6¼¢, refinery basis, in tank car lots.

Anti-scorching and age resisting ingredients are rated indispensable and, consequently, are in steadily increasing demand.

The special requirements in latex compounding have been met with by a line of colloidal ingredients especially designed for that work. These materials now include stabilizing, dispersing, and wetting agents, dispersions for preventing oxidation and sunchecking, and a full line of colloidal color pastes.

New York Quotations

October 26, 1932

Prices Not Reported Will Be Supplied on Application

Abrasives
- Pumicestone, pwd. ..... lb. $0.02½/$0.04
- Rottenstone, domestic ..... ton 23.50 /28.00

Accelerators, Inorganic
- Lime, hydrated ..... ton 20.00
- Litharge, com., pwd., casks lb. .05¾
- Magnesia, calcined, heavy lb. .04½
- carbonate ..... lb. .05¾/ .06

Accelerators, Organic
- Accelerator 49 ..... lb. .38 / .48
- Aldehyde ammonia ..... lb. .65 / .70
- Altax ..... lb.
- Barak ..... lb.
- BLE ..... lb.
- Butene ..... lb.
- Captax ..... lb.
- Crylene ..... lb.
- paste ..... lb.
- DBA ..... lb.
- Di-esterex N. ..... lb.
- DOTG ..... lb. .42 / .52
- DPG ..... lb. .33 / .43
- Ethylidine aniline ..... lb. .45 / .47½
- Formaldehyde aniline ..... lb. .37½/ .40
- Grasselerator 808 ..... lb.
- 833 ..... lb.
- Heptene ..... lb.
- base ..... lb.
- Hexamethylenetetramine ... lb. .46
- Hydrone ..... lb.
- Lead oleate, No. 999 ..... lb. .10½
- Witco ..... lb. .10
- Lithex ..... lb.
- Methylene dianiline ..... lb.
- Monex ..... lb.
- Novex ..... lb.
- Plastone ..... lb.
- R & H 40 ..... lb.
- 50 ..... lb.
- 50-D ..... lb.
- 397 ..... lb.
- Safex ..... lb.
- Super-sulphur No. 1 ..... lb.
- No. 2 ..... lb.
- Tensilac 39 ..... lb. .40 / .42½
- Tetrone A ..... lb.
- Thermlo F ..... lb.
- Thiocarbanilid ..... lb. .25 / .27
- Thionex ..... lb.
- TMTT ..... lb.
- Trimene ..... lb.
- base ..... lb.
- Triphenyl guanidine ..... lb. .58 / .60
- Tuads ..... lb.
- Vulcanex ..... lb.
- ZBX ..... lb.
- Zimate ..... lb.

Acids
- Acetic 28% (bbls.) ... 100 lbs. 2.65 / 2.90
- glacial (carboys) ... 100 lbs. 9.64 / 9.89
- Sulphuric, 66° ..... ton 15.50

Age Resisters
- Age-Rite Gel ..... lb.
- powder ..... lb.
- resin ..... lb.
- white ..... lb.
- Albasan ..... lb.
- Antox ..... lb.
- Neozone ..... lb.
- Permalux ..... lb.
- VGB ..... lb.
- Zalba ..... lb.

Antiscorch Materials
- UTB ..... lb.

Antisun Materials
- Heliozone ..... lb.
- Sunproof ..... lb.

Binders, Fibrous
- Cotton flock, dark ..... lb. .08½/ .10
- dyed ..... lb. .50 / .85
- white ..... lb. $0.11 /$0.16
- Rayon flock, white ..... lb. $1.40
- colored ..... lb. 1.75

Colors

BLACK
- Bone, powdered ..... lb. .05½/ .15
- Drop ..... lb. .05½/ .17
- Lampblack (commercial) ... lb. .06 / .08

BLUE
- Blue toners ..... lb. .80 / 3.50
- Prussian ..... lb. .35 / .37
- Ultramarine ..... lb. .07 / .30

BROWN
- Mapico ..... lb. .14 / .15
- Sienna, Italian, raw, pwd. . lb. .04½/ .11

GREEN
- Chrome, light ..... lb. .23 / .25½
- medium ..... lb. .26 / .27½
- oxide ..... lb. .19 / .21
- Green toners ..... lb. .85 / 3.50

ORANGE
- Cadmium sulphide ..... lb.
- Orange toners ..... lb. .40 / 1.60

ORCHID
- Orchid toners ..... lb. 1.50 / 2.00

PINK
- Pink toners ..... lb. 1.50 / 4.00

PURPLE
- Purple toners ..... lb. .60 / 2.00

RED
- Antimony
- Crimson, R. M. P. No. 3 lb. .48
- Sulphur free ..... lb. .52
- 7-A ..... lb. .35
- Z-2 ..... lb. .20
- Iron Oxides
- Rub-er-red ..... lb. .08¾
- Mapico ..... lb. .08½/ .09
- Red toners ..... lb. .80 / 2.00

WHITE
- Lithopone ..... lb. .04½/ .05
- Albalith ..... lb. .04½/ .04¾
- Cryptone No. 19 ..... lb. .06 / .06¼
- CB No. 21 ..... lb. .06 / .06¼
- Grasselli ..... lb. .04½/ .05
- Titanium oxide, pure ..... lb. .17¼/ .18¾
- Titanox "B" ..... lb. .06 / .06½
- "C" ..... lb. .06 / .06½
- Zinc Oxide
- Black label (lead free) . lb. .05¾
- F. P. Florence, green seal ..... lb. .09¾/ .09⅞
- red seal ..... lb. .08¾/ .08⅞
- white seal (bbls.) ..... lb. .10⅞
- Green label (lead free) . lb. .05¾
- Green seal, Anaconda ..... lb. .09¾/ .10⅛
- Horsehead (lead free) brand
- Selected ..... lb. .05¾/ .06
- Special ..... lb. .05¾/ .06
- XX ..... lb. .05¾/ .06
- green ..... lb. .05¾/ .06
- red ..... lb. .05¾/ .06
- Kadox, black label ..... lb. .09⅜/ .09⅞
- blue label ..... lb. .08⅜/ .08⅞
- red label ..... lb. .07¼/ .07½
- Lehigh (leaded) ..... lb. .0490/ .0515
- Red label (lead free) .. lb. .05¾
- Red seal, Anaconda .... lb. .08⅝/ .09⅛
- Standard (leaded) ..... lb. .05½/ .05¾
- Sterling (leaded) ..... lb. .05½/ .05¾
- Superior (leaded) ..... lb. .05½/ .05¾
- U. S. P. (bbls.) ..... lb. .12¾
- White seal, Anaconda ... lb. .10⅞/ .11⅛
- XX zinc sulphide (bbls.) . lb. .13

YELLOW
- Chrome ..... lb. .16
- Mapico ..... lb. .11 / .12
- Ochre, domestic ..... lb. .01¾/ .02½
- Yellow toners ..... lb. 2.50

Deodorant
- Rodo ..... lb.

Factice—See Rubber Substitutes

Fillers, Inert
- Asbestine ..... ton
- Barytes (f.o.b. St. Louis) .. ton $23.00
- Blanc fixe, dry, precip. ... ton 70.00 /75.00
- pulp ..... ton 42.50 /45.00
- Kalite No. 1 ..... ton 30.00 /55.00
- No. 3 ..... ton 40.00 /65.00
- Suprex white, extra light . ton 60.00 /80.00
- heavy ..... ton 45.00 /55.00
- Whiting
- Chalk, precipitated ..... lb. .03½/ .04
- Domestic ..... 100 lbs. 1.00
- Sussex ..... ton
- Witco ..... ton 20.00

Fillers for Pliability
- Flex ..... lb.
- Fumonex ..... lb. .02½/ .06
- P-33 ..... lb.
- Thermax ..... lb.
- Velvetex ..... lb. .02 / .05

Finishes
- Mica, amber ..... lb. .04
- Starch, corn, pwd ..... 100 lbs. 2.44 / 2.64
- Talc, dusting ..... ton 20.00
- Pyrax A ..... ton

Latex Compounding Ingredients
- Accelerator 552. ..... lb.
- Aquarex ..... lb.
- Catalpo ..... ton 35.00 /60.00
- Colloidal color pastes ..... lb.
- sulphur ..... lb.
- zinc oxide ..... lb.
- Collway sulphur (dry basis) . lb. .25
- Disinfectants ..... lb.
- Dispersed Antox ..... lb.
- Emulsified Heliozone ..... lb.
- Nekal BX (dry) ..... lb.
- Neozone L ..... lb.
- Tepidone ..... lb.

Mineral Rubber
- Genasco (fact'y) ..... ton 40.00 /42.00
- Gilsonite (fact'y) ..... ton 37.34 /39.65
- Granulated M. R. ..... ton
- Hydrocarbon, hard ..... ton
- Parmr Grade 1 ..... ton 23.00 /28.00
- Grade 2 ..... ton 23.00 /28.00

Mold Lubricants
- Sericite ..... lb.
- Soapbark (cut) ..... lb. .06 / .06½
- Soapstone ..... ton 15.00

Oils
- Castor, blown ..... lb. .11¾
- Poppy seed oil ..... gal. 1.60
- Red oil, distilled (bbls.) ... lb. .06¾/ .07¼

Protective Colloids
- Casein, domestic ..... lb. .06 / .06½

Reenforcers
- Aluminum flake ..... ton
- Carbon Black
- Aerfloted arrow black ... lb .02¾
- Arrow specification black . lb. .03
- Century (works, c. l.) .. lb. .02¾
- Certified, Cabot, c. l., f. o. b. works, bags ... lb.
- c. l., f. o. b. works, cases ..... lb. .04¼
- l. c. l., f. o. b. works ... lb. .04¾
- Disperso (works, c. l.) .... lb. .02¾
- Dixie brand ..... lb. .02¾/ .06½
- Elastex ..... lb. .03½/ .08
- Gastex (f. o. b. fact'y) .... lb. .02¼/ .06
- Kosmos brand ..... lb. .02¾/ .06½
- Micronex ..... lb. .03 / .05
- Ordinary (compressed or uncompressed) ..... lb. .02¾/ .07

Clays			
Blue Ridge, dark	*ton*		
China	*ton*	$7.50	
Dixie	*ton*		
Langford	*ton*		
Par	*ton*		
Perfection	*ton*	8.00	/20.00
Standard	*ton*	7.50	
Suprex No. 1	*ton*	8.00	
No. 2, dark	*ton*	6.50	
Glue, high grade	*lb.*	.15 /	.22
Rubber Substitutes or Factice			
Amberex	*lb.*	.15	
Black	*lb.*	.06 /	.08
Brown	*lb.*	.06 /	.11
White	*lb.*	.07 /	.12½
Softeners			
Burgundy pitch	*lb.*	.05	
Degras	*lb.*	.02¾/	.03½
Fluxol	*ton*	18.00	/80.00
Palm oil (Witco)	*lb.*	.08	
Petrolatum, light amber	*lb.*	.02½/	.02¾
Plastogen	*lb.*	.08 /	.12
Rosin oil, compounded	*gal.*	.30	
Rubberseed, drums	*lb.*		
Rubtack	*lb.*	.10	
Tonox	*lb.*		
Witco Flux	*gal.*	.20	
Solvents			
Benzol (90% drums)	*gal.*	.25	
Bondogen	*gal.*	1.50	
Carbon bisulphide (drums)	*lb.*	.05½/	.12
tetrachloride	*lb.*	.06¼/	.07
Dependip	*gal.*		
Dip-Sol	*gal.*		
Dryolene, No. 9	*gal.*		
Petrobenzol	*gal.*		
Rub-Sol	*gal.*		
Solvent naphtha 284	*gal.*		
Stod Sol	*gal.*		
Troluoil	*gal.*		
Turpentine, dest. distilled	*gal.*	.32	
Stabilizers for Cure			
Laurex, ton lots	*lb.*		
Stearex B	*lb.*	.07 /	.09
flake	*lb.*	.06½/	.08
Stearic acid, dbl. pres'd	*lb.*	.08 /	.12
Vulcanizing Ingredients			
Rubber sulphur	100 *lbs.*	1.85 /	2.35
Sulphur chloride, drums	*lb.*	.03½/	.04
Telloy	*lb.*		
Vandex	*lb.*		

(See also Colors—Antimony)

British Malaya

An official cable from Singapore to the Malayan Information Agency, Malaya House, 57 Charing Cross, London, S.W.1, England, gives the following figures for September, 1932:

Rubber Exports

Ocean Shipments from Singapore, Penang, Malacca, and Port Swettenham

	September, 1932	
To	Sheet and Crepe Rubber Tons	Latex Concentrated Latex and Revertex Tons
United Kingdom	5,925	90
United States	22,387	262
Continent of Europe	6,662	138
British possessions	773	4
Japan	5,310	4
Other countries	407	11
Totals	41,464	509

Rubber Imports

Actual Imports by Land and Sea

	September, 1932	
From	Dry Rubber Tons	Wet Rubber Tons
Sumatra	484	3,654
Dutch Borneo	323	2,684
Java and other Dutch Islands	130	14
Sarawak	603	11
British Borneo	154	20
Burma	96	8
Siam	163	186
French Indo-China	265	34
Other countries	37	3
Totals	2,255	6,614

IMPORTS, CONSUMPTION, AND STOCKS

CONSUMPTION of crude rubber by manufacturers in the United States for September totaled 22,491 long tons compared with 22,372 long tons for August, 1932, an increase of 0.5%, according to The Rubber Manufacturers Association.

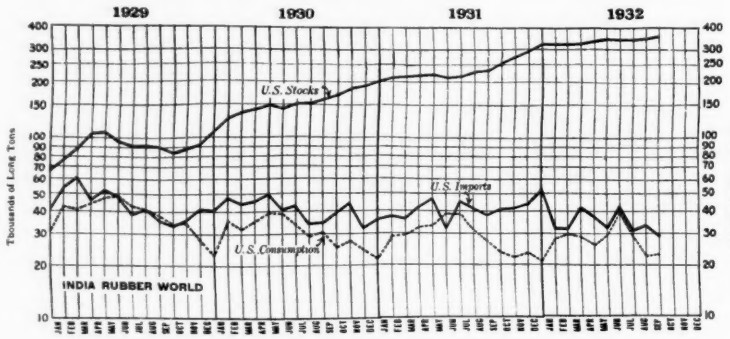
August imports of crude rubber were 29,509 long tons, a decrease of 13.8% below August, 1932, and 27.1% below September, 1931.

Total domestic stocks of crude rubber on hand September 30 are estimated at 365,789 long tons, compared with August 31 stocks of 357,342. September stocks increased 2.4% as compared with August of this year and were 43.8% above the stocks of September 30, 1931.

There were 46,188 long tons of crude rubber afloat for the United States ports on September 30 compared with 42,846 long tons afloat on August 31, 1932, and 46,815 long tons afloat on September 30, 1931.

London and Liverpool Stocks

Week Ended	Tons	
	London	Liverpool
Oct. 1	44,972	58,261
Oct. 8	44,503	58,209
Oct. 15	43,729	57,831
Oct. 22	43,173	57,568



United States Stocks, Imports, and Consumption

United States and World Statistics of Rubber Imports, Exports, Consumption, and Stocks

Twelve Months	U. S. Net Imports* Tons	U. S. Consumption Tons	U. S. Stocks on Hand† Tons	U. S. Stocks Afloat† Tons	United Kingdom Stocks†‡ Tons	Singapore and Penang, Etc., Stocks†‡ Tons	World Production (Net Exports)‡ Tons	World Consumption Estimated‡ Tons	World Stocks†‡‖ Tons
1927	431,807	372,528	100,130	47,938	65,663	25,798	605,196	589,128	193,146
1928	446,421	442,227	66,166	68,764	22,691	32,905	649,674	667,027	122,828
1929	561,454	466,475	105,138	62,389	73,276	36,768	863,410	785,475	228,572
1930	488,343	375,980	200,998	56,035	118,297	45,179	821,815	684,993	366,034
1931	495,163	348,986	322,826	53,940	127,103	55,458	797,441	668,660	495,724
1932									
January	31,298	27,962	322,860	42,234	125,276	59,836	63,627	50,480	507,962
February	30,546	30,012	322,117	51,728	125,958	56,684	59,871	51,230	504,759
March	42,382	27,828	334,566	44,190	124,975	51,072	58,977	63,324	510,838
April	37,017	25,953	343,098	40,387	123,235	48,303	57,232	57,450	514,637
May	32,224	29,197	346,231	50,453	116,015	47,015	62,434	56,156	509,261
June	41,394	39,116	345,702	43,079	109,509	28,671	57,713	72,300	455,973
July	31,078	28,272	345,927	37,894	106,085	24,206	60,812	56,720	474,218
August	34,219	22,372	357,342	42,846	104,315	27,595	59,130	54,280	489,252
September	29,509	22,491	365,789	46,188	.....	.....	.....	.....	.....

*Including liquid latex, but not guayule. †Stocks on hand the last of the month or year. ‡W. H. Rickinson & Son's figures. ‖Stocks at the 3 main centers, U. S. A., U. K., Singapore and Penang.

Imports by Customs Districts

	August, 1932				August, 1931	
	Rubber Latex		Crude Rubber		*Crude Rubber	
	Pounds	Value	Pounds	Value	Pounds	Value
Massachusetts	378,055	$26,476	3,017,585	$86,636	3,529,210	$245,328
New York	760,515	29,051	53,691,447	1,474,400	74,163,438	4,430,268
Philadelphia	.....	.....	169,053	3,604	335,380	19,320
Maryland	.....	.....	9,063,230	221,494	2,611,087	140,354
Georgia	.....	.....	.....	.....	407,668	22,296
New Orleans	.....	.....	291,200	5,211	.....	.....
Los Angeles	.....	.....	8,559,346	230,040	5,459,530	286,126
San Francisco	.....	.....	123,200	5,090	51,022	3,220
Oregon	.....	.....	11,200	570	11,200	638
Ohio	70,005	3,651	.....	.....	25,151	1,558
Colorado	.....	.....	.....	.....	840,000	49,654
Totals	1,208,575	$59,178	74,926,261	$2,027,045	87,433,686	$5,198,762

*Crude rubber including latex dry rubber content.

COTTON AND FABRICS

AGAIN the government crop report was disappointing. Instead of a lower estimate, foreshadowed by the bulk of private figures, the government predicted a crop 115,000 bales more than its estimate the month before.

Prices turned downward following the report and continued on the bear side during the month, thus practically cancelling the recent gains.

The cotton cloth report showed that the industry was in one of the best statistical positions in its history. The sharp increase in production registered during August continued into September until stocks on hand dropped to a figure large enough to cover only 3 weeks' supply.

In the early part of October the fine showing was extended, but then another factor entered into the picture. Buying dropped off in the last part of October; gray goods prices eased; the rate of output dropped; and more hesitancy appeared.

The reason was said to be doubt as to the result of the coming election. Buyers are holding off until final results are known. What results they are expecting we do not know, but a study conducted by Lamborn Hutchings & Co. is interesting in this connection. It analyzed the action of security prices on the New York Stock Exchange during the last 14 presidential years, as follows:

"It is interesting to note that when final results were known that prices declined as much as they advanced after Election Day. In other words, after 7 elections the trend was upward and after the same number the trend was downward."

Whether the same thing holds true of commodity prices and finished goods prices remains to be seen.

Termination of the Manchester wage dispute was hailed with relief, as a cessation of operations would have done much damage to the British cotton cloth industry. The drop in sterling at the expense of the dollar made for an active business in Liverpool for a time.

Foreign growths will be above those of last year, according to the latest government report, but the world supply of cotton is less than it was although still much greater than requirements.

Week ended October 1. A good crop report and hedge selling pressure were factors which depressed the market somewhat during the week. News, however, was scarce, and the decline came as much from a dull tone in stocks and other markets as from cotton news. A general uncertainty seems to prevail at present as to what course business will pursue in the next few weeks; so traders hesitate to make commitments.

The government crop report due on October 8 is also responsible for hesitation. It is expected that the crop in Texas will show a decline, but whether it will affect the total is hard to say. A private report put the crop at 11,362,000 bales as of September 27, 52,000 bales higher than the last government report.

COTTON BEAR POINTS

1. **The 1932 crop was estimated at 11,425,000 bales in the latest government report, an increase of 115,000 bales over last month's estimate.**
2. **Buyers seem hesitant to make commitments in the textile markets, awaiting the outcome of the election. Gray goods prices have eased under this hesitancy.**
3. **The holding movement in the South was said to have made for a high basis price.**
4. **Cotton held in public storage and compresses was 7,969,280 bales on September 30 against 6,298,408 last year; in consuming establishments it was 1,087,286 bales against 777,868 last year.**
5. **The world carryover of cotton this year was 17,295,000 bales against 13,948,000 last year.**
6. **The grade of cotton being ginned this year is showing a scarcity of the better staple.**
7. **Foreign production of cotton this year is put at 10,378,000 bales against 9,658,000 last year.**
8. **The decline in sterling has worked against the New York market.**
9. **Ginnings to October 18 were 7,311,208 bales against 9,496,965 bales to the same date last year.**

COTTON BULL POINTS

1. **Mill stocks of carded cotton cloth on September 30 decreased 23.5%, or to less than 3 weeks of current production; billings were 117.3% of production; sales were 102.6% of production; and unfilled orders increased.**
2. **Exports in September were 733,665 running bales against 452,154 in August and 558,192 in September last year.**
3. **Consumption of cotton in September was 491,655 bales against 402,601 in August and 464,335 in September last year.**
4. **The cotton spinning industry operated at 94.6% capacity during September, compared with 72.4% in August and with 88.1% in September last year.**
5. **World production of cotton this year is estimated at 21,700,000 bales, compared with 26,294,000 bales last season, according to the New York Cotton Exchange Service.**
6. **Peaceful termination of the threatened strike in Manchester has removed a possible loss of business by Britain to foreign competitors.**
7. **American cotton is competing successfully with Indian cotton.**

An estimate of the East Indian crop was about as expected: 4,970,000 bales for the present season, compared with 4,000,000 last season and a 5-year average of 5,691,000 bales.

Price changes for the week were from 40 to 46 points on the bear side. October closed at 6.90¢ compared with 7.30¢ last week; December, 6.99 against 7.43; January, 7.04 against 7.50; March, 7.14 against 7.56; and June 7.29 against 7.74.

C. T. Revere, cotton expert of Munds Winslow & Potter, stated, "Long before the last bale of cotton will be picked in late Autumn the boll weevil will have entered winter quarters over a wider area than ever known in the history of the American cotton growing industry . . . The density of the weevil population at the end of this season probably never before has been equalled."

The lack of fertilizer this year and prospects for a similar condition next year also drew comment from Mr. Revere.

Week ending October 8. The Department of Agriculture forecast a crop of 11,425,000 bales based on October 1 conditions. This figure was 115,000 bales higher than the estimate last month and far above all private reports. The market, listless all week while awaiting the forecast, broke 43 to 47 points on Saturday after the news was released. Heavy hedge selling just before 11:00 a. m., when the government figures were given, accounted for about half the week's losses of from 35 to 47 points. The crop report accounted for the other half.

The October position closed at 6.51¢ against 6.90¢ last week; December 6.54 against 6.99; January, 6.59 against 7.04; March, 6.69 against 7.14; May, 6.80 against 7.24; and July 6.86 against 7.33.

Unfavorable weather reports of much frost since October 1 led traders to expect a smaller crop. Apparently the board had discounted heavily for these losses in its first estimate although in its present report no allowance was made for frost since October 1.

The Census Bureau showed ginnings of 4,835,465 bales prior to October 1, compared with 5,409,657 for 1931 and 6,303,895 for 1930. The October 1 condition of the crop was 54.2% of normal against 69.3% on the same date last year and a 10-year average of 52.8%. The crop as indicated now is 5,671,000 bales less than last year.

The index of cotton cloth maintained by the *Times* rose to 100.9 for last week, the highest since May, 1930. The large volume of forward business booked in August will probably result in a good showing for September, according to the New York Cotton Exchange Service. Since textile merchants had awaited the crop report, some buying occurred on the break from this source.

Week ended October 15. Despite the unexpectedly high government crop forecast issued the end of last week and the weakness in stocks and grains, the cotton market gave a good account of itself in the last week. The report on consumption was good and would have lifted prices higher, but much hedging followed the consumption report and cancelled part of the advance.

As it was, the market lost from 13 to 16 points for the week. The October contract closed at 6.35¢ against 6.51¢ the week before; December, 6.40 against 6.54; January, 6.46 against 6.59; March, 6.55 against 6.69; May, 6.64 against 6.80; and July 6.71 against 6.86.

The largest loss of the week occurred Thursday, when, following the Columbus Day holiday, the market lost 28 to 35 points on hedging and selling following a good weather report. Continent and domestic trade buying failed to bolster prices.

On Friday the consumption report sent the market up from 6 to 10 points despite further selling and hedging. The report showed that September cotton consumption was 491,655 bales of lint, compared with 402,601 in August this year and 464,335 in September 1931. Cotton on hand on September 30 was much higher than it had been last year in both consuming establishments and public storage.

Exports in September totaled 733,665 bales of lint against 452,154 in August this year and 558,192 in September last year.

The cotton cloth statistics published by the Cotton Textile Merchants of New York showed the firmest statistical position in the history of the industry. Stocks during September dropped 23.5% to a new

low record of 160,121,000 yards; billings were 117.3% of production; sales were 102.6% of production; and unfilled yardage, at 444,028,000 yards, was larger than in 1929.

Week ended October 22. Heavy marketing of the staple, hedge selling, and a favorable weather report weakened the cotton market in the last week, sending prices to the low points for the recent movement. Speculative interest was limited in the market so that hedge pressure depressed prices. Changes for the week were 22 to 25 points down.

October sold at 6.10¢ at the close of the week, compared with 6.35 the week before; December 6.16 against 6.40; January 6.20 against 6.46; March 6.30 against 6.55; May 6.40 against 6.64; and July 6.48 against 6.71.

The peak of the movement of the crop to market is expected to be reached shortly, after which a decline in hedge selling will probably set in. Mills bought moderately, but prices did not advance because of southern hedging. Spinners seem reluctant to make commitments at this time.

The drop in the price of sterling brought out buying from Liverpool. Hedge selling was less on the Liverpool market, and it received further strength from calling, Bombay buying, and an improved cloth demand from the Continent and South America. The labor dispute was not settled at Manchester, with the Master Cotton Spinners' notice for a reduction of wages expiring on Friday. Operatives are reported to be willing to settle for a reduction of 1s 5d, and employers are holding out for a reduction of 1s 8½d in the pound. Negotiations will continue.

Weather last week was rainy, and frost did some damage in the Northwest. The weather this week was better, and the crop is now so well along that weather news will not be a market influence much longer.

On Monday, October 24, selling originating in the South, sent the market off from 3 to 7 points, to new lows for the movement. December dropped to 6.10¢ from 6.18¢. Liverpool was steadier under an improvement in prospects for good business at Manchester. At the close, October was 6.07¢, December 6.10, January 6.18, March 6.24, May 6.33, and July 6.41.

The October 25 market was steadier, and under short covering near the close it was from 5 to 7 points higher than on Monday. Less southern selling appeared.

The ginning report was slightly above recent forecasts, but near enough not to affect the market unduly. The amount of cotton ginned prior to October was put at 7,311,208 bales against 9,496,965 bales in the same period last year. Ginnings in Texas were only 2,344,667, leading to the belief that the crop there might be smaller than supposed.

The October 26 market opened at an advance of 7 to 9 points. December closed at 6.31¢ against 6.16¢; January 6.36 against 6.23; March 6.45 against 6.29. The tone was steady most of the day.

Cotton Fabrics

Ducks, Drills, and Osnaburgs. The market for these goods has suffered recession in the volume of demand; consequently prices have eased off for the time being. The volume of business during October was markedly less than during the preceding quarter. The greater part of consumers' needs is fairly well covered for the next 60 to 90 days, and those who are short of merchandise are awaiting the results of the coming election.

Raincoat Fabrics. Manufacturers of raincoats are very busy at present with the usual fall business. The most popular selling garments this season are trench coats and Jersey and printed goods.

Sheetings. For several weeks the market has been very sensitive and declining. Buyers have been hesitant about placing commitments until after the first of November. They believe that with raw cotton declining in price they have little to lose and considerable to gain by waiting further developments.

Tire Fabrics. During October the demand for tire fabrics was inactive, and prices for the most part were unchanged. Statistics of tire fabric consumption show that 10,115,830 yards were used in August. In the first 8 months of 1932 98,398,703 yards were consumed as compared with 116,004,763 yards for the corresponding period in 1931, or a decrease of 17,606,060 yards.

Crude Rubber

(Continued from page 66)

the preceding week, while in the corresponding week last year it was 22.3, a sharp drop for 37.8 for the preceding week. Actual production declined, but it was slightly less than the normal seasonal decrease; so the index moved down only a fraction.

September new passenger-car registrations, as reported by R. L. Polk and Co. for 28 states, was 78,400 against 93,457 in August, and 124,875 in September, 1931. Seasonal allowances, however, show a gain of 1½ from August to September.

A dull and featureless market greeted traders Monday, October 24, and prices moved from 1 point lower to 3 points higher on a turnover of only 120 long tons. October closed at 3.32, December 3.39, February 3.51, March 3.57, May 3.63.

On Tuesday, October 25, the market was firmer on the Exchange, in sympathy with stocks and other commodities. October closed at 3.39¢, December 3.43, January 3.49, March 3.63, May 3.67, and July 3.75.

The Outside Market told about the same story for the 2 days. Monday was dull, Tuesday more active with a strong interest manifested by dealers. Whether they bought for factories or not is hard to say.

Quotations for the 2 days were about the same, with a firmer tone Tuesday, as follows: October was 3½¢, December 3$\frac{11}{16}$, January-March 3$\frac{13}{16}$, April-June 3⅞, and July-September 4$\frac{1}{16}$.

The depressed grain market and a new decline in sterling on October 26 caused heaviness in the rubber market. March sold at 3.55¢ and 3.56 at the close against 3.53 in the morning. The entire list ended 4 to 6 points lower. Bidding for actuals was too low for acceptance. Spot ribs were 3½¢, and March deliveries firm at 3$\frac{5}{8}$¢.

WEEKLY AVERAGE PRICES OF MIDDLING COTTON

Week Ended	Cents per Pound
Oct. 1	7.28
Oct. 8	7.03
Oct. 15	6.59
Oct. 22	6.34

New York Quotations

October 26, 1932

	Cents
Drills	
38-inch 2.00-yd. ..... yd.	$0.08½
40-inch 3.47-yd.	.05
50-inch 1.52-yd.	.11½
**52-inch 1.90-yd. ..... **	**.09½**
52-inch 2.20-yd.	.08
52-inch 1.85-yd.	.09½
Ducks	
38-inch 2.00-yd. D. F. ..... yd.	.08¾
40-inch 1.45-yd. S. F.	.12
72-inch 1.05-yd. D. F.	.20
72-inch 16.66-oz.	.21½
72-inch 17.21-oz.	.22½
MECHANICAL	
Hose and belting ..... lb.	.20
TENNIS	
52-inch 1.35-yd. ..... yd.	.13
Hollands	
GOLD SEAL	
40-in., No. 72 ..... yd.	.14
RED SEAL	
36-in. ..... yd.	.11
40-in.	.11½
50-in.	.17½
Osnaburgs	
40-in. 2.34-yd. ..... yd.	.07⅝
40-in. 2.48-yd.	.07
40-in. 3.00-yd.	.05½
40-in. 10-oz. part waste	.08⅞
40-in. 7-oz. part waste	.06¾
37-in. 2.42 yd	.07¼
Raincoat Fabrics	
COTTON	
Bombazine 60 x 60 ..... yd.	.08¼
**Bombazine 60 x 48 ..... **	**.07¾**
Plaids 60 x 48	.07¾
Plaids 48 x 48	.06¾
**Surface prints 60 x 60 ..... **	**.09¼**
Surface prints 60 x 48	.08¼
Print cloth, 38½-in., 64 x 60	.04
Print cloth, 38½-in., 60 x 48	.03¼
SHEETINGS, 40-INCH	
48 x 48, 2.50-yd. ..... yd.	.06
48 x 48, 2.85-yd.	.05½
64 x 68, 3.15-yd.	.05½
56 x 60, 3.60-yd.	.04⅞
44 x 48, 3.75-yd.	.04⅝
44 x 40, 4.25-yd.	.03⅞
SHEETINGS, 36-INCH	
48 x 44, 5.00-yd. ..... yd.	.03⅝
44 x 40, 6.15-yd.	.02⅞
Tire Fabrics	
BUILDER	
17¼ oz. 60" 23/11 ply Karded peeler ..... lb.	.21¼
17¼ oz. 60" 10/5 ply Karded peeler ..... lb.	.18¼
CHAFER	
14 oz. 60" 20/8 ply Karded peeler ..... lb.	.21¼
12 oz. 60" 10/4 ply Karded peeler ..... lb.	.17¼
9¼ oz. 60" 20/4 ply Karded peeler ..... lb.	.23¼
9¼ oz. 60" 10/2 ply Karded peeler ..... lb.	.18¼
CORD FABRICS	
23/5/3 Karded peeler, 1$\frac{1}{16}$" cotton lb.	.22
23/4/3 Karded peeler, 1$\frac{1}{16}$" cotton lb.	.23
15/3/3 Karded peeler, 1$\frac{1}{16}$" cotton lb.	.20
13/3/3 Karded peeler, 1$\frac{1}{16}$" cotton lb.	.19
7/2/2 Karded peeler, 1$\frac{1}{16}$" cotton lb.	.18
23/5/3 Karded peeler, 1¼" cotton lb.	.28
23/5/3 Karded Egyptian ..... lb.	.34¾
23/5/3 Combed Egyptian ..... lb.	.38¾
LENO BREAKER	
8¼ oz. and 10¼ oz. 60" Karded peeler ..... lb.	.21¼

World Rubber Absorption —Net Imports

Consumption	Long Tons—1932 June	July	Aug.
United States	39,244	28,364	22,445
United Kingdom	8,362	7,507	8,436
Net Imports			
Australia	1,421	624	.....
Austria	180	295	117
Belgium	449	723	.....
Canada	2,834	1,529	970
Czechoslovakia	280	1,207	.....
Denmark	74	51	69
Finland	51	62	21
France	3,666	3,125	4,919
Germany	3,405	3,380	4,006
Italy	1,534	1,116	1,615
Japan	2,834	2,544	3,390
Netherlands	127	†216	†66
Norway	93	148	82
Russia	5,291	1,735	.....
Spain	196	258	210
Sweden	360	523	439
Switzerland	45	27	49
Others	*800	*800	*800
Totals	71,246	80,104	.....
Minus United States (Cons.)	39,244	28,364	22,445
Total foreign	32,002	51,740	.....

*Estimate to complete table.
†Indicating excess of reexports over imports.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

Statement of "India Rubber World"

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of India Rubber World, published monthly at New York, N. Y., for October 1, 1932.

State of New York }
County of New York } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared William M. Morse, who, having been duly sworn according to law, deposes and says that he is the Editor of India Rubber World, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: publisher, Federated Business Publications, Inc., 420 Lexington Ave., New York, N. Y.; editor, William M. Morse, 420 Lexington Ave., New York, N. Y.; managing editor, William M. Morse, 420 Lexington Ave., New York, N. Y.; business manager, B. Brittain Wilson, 420 Lexington Ave., New York, N. Y.

2. That the owner is: Federated Business Publications, Inc.; Edward Lyman Bill, Inc.; Bill, Brown & Bill Pub. Corp.; Caroline L. Bill; Raymond Bill; Edward L. Bill; Randolph Brown; and J. B. Spillane, all of 420 Lexington Ave., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

William M. Morse, Editor.

Sworn to and subscribed before me this 30th day of September, 1932.

[seal] Wm. A. Low.

Notary Public N. Y. Co. No. 753. Reg. No. 31,487. Certificate filed in Queens Co. No. 1126. (My commission expires March 30, 1933.)

Foreign Trade Information

For further information concerning the inquiries listed below address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

No.	Commodity	City and Country
†1,151	Rubber tile flooring	Montreal, Canada
†1,152	Bathing caps, shoes, and belts	Milan, Italy
†1,157	Tires	Berlin, Germany
†1,224	Toy balloons	Bombay, India
†1,249	Oversoles	Montreal, Canada
†1,291	Druggists' sundries	Montreal, Canada
†1,307	Scrap rubber for canvas shoe soles	Lisbon, Portugal
†1,313	Rubber-coated duck	Berlin, Germany
†1,350	V-type belting	Milan, Italy
†1,374	Hose	Alexandria, Egypt
*†1,392	Mineral rubber	Paris, France
†1,405	Surgical goods	Bombay, India
†1,416	Hot water bags, ice caps, sheeting, and druggists' sundries	Caracas, Venezuela
†1,523	Boots	Auckland, New Zealand
*†1,524	Rubber soled canvas shoes	Brussels, Belgium
†1,543	Druggists' sundries	London, England
†1,603	Scrap rubber (inner tubes)	Lisbon, Portugal
†1,625	Toys and balloons	Dar-Es-Salaam, British East Africa

†Agency. *†Purchase and agency.

U. S. Crude and Waste Rubber Imports for 1932

	Plantations	Latex	Paras	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Totals 1932	Totals 1931	Balata	Miscellaneous	Waste
Jan. ....*tons*	30,847	271	142	38	..	..	..	31,298	37,098	53	731	50
Feb.	30,041	361	144	..	..	..	..	30,546	36,645	98	689	..
Mar.	41,753	335	240	54	..	..	..	42,382	40,338	65	754	25
Apr.	36,390	516	111	..	..	..	..	37,017	46,648	35	421	..
May	32,030	82	81	31	..	..	..	32,224	31,720	72	645	30
June	41,070	290	34	..	..	..	..	41,394	45,776	17	415	..
July	30,822	212	44	..	..	..	..	31,078	41,004	57	505	..
Aug.	33,939	260	20	..	..	..	..	34,219	38,370	25	437	9
Sept.	29,311	95	101	2	..	..	..	29,509	40,505	20	257	..
Total, 9 mos.. 1932 ....*tons*	306,203	2,422	917	125	..	..	..	309,667	.....	442	4,854	114
Total, 9 mos.. 1931 ....*tons*	350,915	3,054	3,974	160	1	..	..	.....	358,104	1,083	6,076	145

Compiled from The Rubber Manufacturers Association, Inc., statistics.

Rims Approved by The Tire & Rim Association, Inc.

Rim Size	Nine Months, 1931 No.	%	Nine Months, 1932 No.	%
Motorcycle				
24x3	404	0.0	1,146	0.0
Clincher				
30x3½	22,483	0.2	6,829	0.1
Drop Center				
16x3.62F	.....	...	20	0.0
17x3.00D	10	0.0	112,687	2.4
17x3.25E	8,113	0.1	152,450	3.2
17x3.62F	719	0.0	334,231	7.0
17x4.00F	6	0.0	10,341	0.2
17x4.19F	65	0.0	57,692	1.2
18x2.15B	19,660	0.2	18,348	0.4
18x3.00D	371	0.0	1,488,187	31.3
18x3.25E	381,239	3.6	1,146,628	24.1
18x3.62F	12,821	0.1	67,571	1.4
18x4.00F	10,515	0.1	68,478	1.4
18x4.19F	57	0.0	37,738	0.8
19x2.15B	8,958	0.1	7,675	0.2
19x2.75D	3,895	0.0	.....	...
19x3.00D	5,778,043	55.0	53,030	1.1
19x3.25E	80,959	0.8	3,010	0.1
19x3.62F	1,971	0.0	.....	...
19x4.00F	32,078	0.3	.....	...
20x2.75D	423	0.0	123	0.0
Semi Drop Base Split Rims				
17x3.00D	28	0.0	.....	...
17x3.25E	14,759	0.1	.....	...
17x3.62F	4,597	0.0	14,886	0.3
18x3.00D	25	0.0	.....	...
18x3.25E	26,241	0.2	.....	...
19x3.00D	126,269	1.2	10,468	0.2
19x3.62F	20	0.0	.....	...
Flat Base Balloon				
17x3.25E	28,721	0.2	.....	...
17x4	94,694	0.9	10,490	0.2
17x4½	159,113	1.5	8,636	0.2
17x5	7,204	0.1	2,727	0.1
18x3.00D	316	0.0	.....	...
18x3.25E	134,734	1.3	1,193	0.0
18x3½	.....	...	276	0.0
18x4	218,392	2.1	18,903	0.4
18x4½	20,411	0.2	358	0.0
18x5	41,840	0.4	4,561	0.1
18x6	18,783	0.2	.....	...
19x2.75D	97,195	0.9	8,118	0.2
19x3.00D	96,787	0.9	648	0.0
19x3.25E	3,242	0.0	.....	...
19x3½	4,797	0.0	106	0.0
19x4	443,134	4.2	16,736	0.4

Rim Size	Nine Months, 1931 No.	%	Nine Months, 1932 No.	%
Flat Base Balloon (*Continued*)				
19x4½	275,024	2.6	6,348	0.1
19x5	69,290	0.7	2,003	0.0
20x2.75D	43,897	0.4	7,610	0.2
20x3½	18,072	0.2	16,065	0.3
20x4	24,049	0.2	7,747	0.2
20x4½	15,303	0.1	6,569	0.1
20x5	17,803	0.2	11,086	0.2
20x6	4,569	0.0	3,105	0.1
21x2.75D	1,023	0.0	1,074	0.0
21x3½	60,645	0.6	12,539	0.3
21x4	9,657	0.1	6,248	0.1
21x4½	11,895	0.1	5,983	0.1
21x5	2,066	0.0	157	0.0
21x6	1,734	0.0	727	0.0
22x4	153	0.0	.....	...
High Pressure				
30x3½	13,009	0.1	841	0.0
32x4	1,987	0.0	922	0.0
32x4½	4,155	0.0	.....	...
34x4½	197	0.0	358	0.0
18" Truck				
18x5	1,895	0.0	5,270	0.1
18x7	9,517	0.1	3,995	0.1
18x8	1,475	0.0	289	0.0
20" Truck				
20x5	1,633,987	15.6	736,500	15.5
20x6	143,743	1.4	117,103	2.5
20x7	95,725	0.9	52,567	1.1
20x8	55,666	0.5	38,823	0.8
20x9/10	7,701	0.1	4,332	0.1
20x10.50	1,629	0.0	242	0.0
20x11	1,216	0.0	560	0.0
22" Truck				
22x7	2,221	0.0	349	0.0
22x8	8,544	0.1	4,393	0.1
22x9/10	3,626	0.0	4,105	0.1
24" Truck				
24x5	1,125	0.0	.....	...
24x6	3,167	0.0	2,013	0.0
24x7	9,961	0.1	4,837	0.1
24x8	33,584	0.3	18,057	0.4
24x9/10	8,439	0.1	5,626	0.1
24x11	566	0.0	400	0.0
Airplane				
18x3	200	0.0	.....	...
24x4	109	0.0	.....	...
44x10	114	0.0	.....	...
Totals	10,502,830	...	4,753,133	...

CLASSIFIED ADVERTISEMENTS

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CHEMIST, AGE FORTY-TWO, SINGLE. 14 YEARS' EXPERIENCE. Laboratory and factory work on tires, insulation, and reclaiming. Wide variety of non-rubber chemical experience. Address Box No. 111, care of INDIA RUBBER WORLD.

MAN, TWENTY-EIGHT, 6 YEARS' BROAD, PRACTICAL, AND technical experience in rubber industry with large companies. Knowledge compounding. Address Box No. 112, care of INDIA RUBBER WORLD.

RUBBER COMPOUNDER AND CHEMIST, COLLEGE GRADUATE, with 8 years of experience in compounding, research, and chemical control, available immediately. Experience covers both hard and soft rubber and includes tires, tubes, general line of mechanicals, and dipped goods. Location immaterial. Address Box No. 116, care of INDIA RUBBER WORLD.

FACTORY MANAGER AND DEVELOPMENT MAN, EXPERIENCED in both soft and hard rubber mechanicals, calenders, mills, and presses. Knowledge of compounding. Reputed excellent handler of men. Address Box No. 118, care of INDIA RUBBER WORLD.

EXECUTIVE AND DEVELOPMENT MAN, HAVING THOROUGH knowledge and practical experience in brake lining manufacture including the latest in molded brake lining and brake blocks. Address Box No. 119, care of INDIA RUBBER WORLD.

PRACTICAL MAN, 37, EXPERIENCED IN RESEARCH AND development of rubber-like plastics. Sound knowledge of milling, compounding, curing, physical-chemical tests, colloids, resins, and technical problems. Capable supervisor. Consider anything. Fine references. Address Box No. 120, care of INDIA RUBBER WORLD.

LATEX COMPOUNDING—OVER 2 YEARS' EXPERIENCE; ALSO experienced in waterproof footwear compounds. Position wanted as development or production chemist. Now employed. Address Box No. 127, care of INDIA RUBBER WORLD.

RUBBER CHEMIST OR ASSISTANT SUPERINTENDENT, WITH years of practical experience here and abroad, is looking for a new, permanent connection. Familiar with laboratory research development and factory control work. Experienced in the manufacture of tires, tubes, hose, druggists' sundries, coated fabrics, tapes for various purposes, hot and cold plastics, and footwear. At present with large manufacturer of seamless goods, both cement and latex. Very best references. Would go abroad. Address Box No. 128, care of INDIA RUBBER WORLD.

SITUATIONS OPEN

WANTED IMMEDIATELY: ASSISTANT TO TECHNICAL DIrector of amalgamated Norwegian rubber factories. Must have good training in all classes of footwear, tires, and mechanical goods. Entertaining only those applicants who know how to treat workmen and are perfectly familiar with modern manufacture, compounds, vulcanization, and calculations. Age not over 35; single man preferred. Handwritten application with copies of testimonials certified by notary. Send photograph. Address P. M. Rowde, Consul General, Oslo, Norway.

SALESMAN WANTED: BY A PROGRESSIVE, WELL equipped mechanical goods manufacturer. Must be able to sell soles, heels, and sheet soling in New York and southern territory. State experience. Address Box No. 125, care of INDIA RUBBER WORLD.

BUSINESS OPPORTUNITIES

WE BUY AND SELL RAW AND SCRAP RUBBER. CORRESPONDence solicited. Chautard & Co., Ltd., 15-16 America-square, London, E. C. 3, England.

ESTABLISHED MACHINE MANUFACTURER NEEDS AGGRESsive traveling representative with office in Chicago to handle mid-western sales on commission. Write fully in confidence. Address Box No. 114, care of INDIA RUBBER WORLD.

FOR SALE: RUBBER PLANT IN EASTERN MASSACHUSETTS, completely equipped for manufacture of molded goods. Address Box No. 115, care of INDIA RUBBER WORLD.

WHITE HARD RUBBER. CHEMIST, WITH SPECIAL PROCESS for the manufacture of white hard rubber, would like to interest manufacturer or capitalist in development of new process for manufacturing white hard rubber goods. Address Box No. 117, care of INDIA RUBBER WORLD.

PACIFIC COAST MANUFACTURERS' REPRESENTATIVE. OLD company—show rooms—warehousing facilities—an organization thoroughly acquainted with all types of jobbers, large department stores, and premium trade. Open to represent line of responsible manufacturers for Pacific Coast territory. Address Box No. 129, care of INDIA RUBBER WORLD.

(*Advertisements continued on page 79*)

Tire Production Statistics

	Pneumatic Casings—All Types		
	In-ventory	Produc-tion	Total Shipments
1929	9,470,368	54,980,672	55,515,884
1930	7,202,750	40,772,378	42,913,108
1931	6,219,776	38,992,220	40,048,552
1932			
Jan.	6,329,417	2,769,988	2,602,469
Feb.	7,337,796	3,096,976	2,042,289
Mar.	7,902,258	2,936,872	2,363,232
Apr.	7,876,656	2,813,489	2,958,104
May	7,502,953	3,056,050	3,406,493
June	3,999,260	4,514,663	8,051,932
July	4,962,285	2,893,463	1,923,276
Aug.	5,327,179	2,471,361	2,123,890

	Inner Tubes—All Types		
	In-ventory	Produc-tion	Total Shipments
1929	10,245,365	55,062,886	56,473,303
1930	7,999,477	41,936,029	43,952,139
1931	6,337,570	38,666,376	40,017,175
1932			
Jan.	6,175,055	2,718,508	2,803,369
Feb.	7,007,567	3,056,988	2,182,405
Mar.	7,558,177	2,801,602	2,148,899
Apr.	7,552,674	2,579,768	2,708,186
May	7,130,625	2,727,462	3,093,593
June	4,139,358	4,222,816	7,215,371
July	4,779,814	2,349,761	1,727,750
Aug.	4,901,884	2,198,560	2,002,347

	Solid and Cushion Tires		
	In-ventory	Produc-tion	Total Shipments
1929	122,200	407,347	436,027
1930	75,871	204,340	250,635
1931	38,815	136,261	167,555
1932			
Jan.	37,327	8,522	9,488
Feb.	37,242	9,754	9,541
Mar.	36,811	8,796	9,205
Apr.	35,816	7,980	8,436
May	35,179	8,026	8,405
June	22,988	11,170	22,474
July	25,218	9,655	7,104
Aug.	24,814	7,728	7,912

	Cotton and Rubber Consumption Casings, Tubes, Solid and Cushion Tires		Consumption of Motor Gasoline (100%) Gallons
	Cotton Fabric Pounds	Crude Rubber Pounds	
1929	208,824,653	598,994,708	14,748,552,000
1930	158,812,462	476,755,707	16,200,894,000
1931	151,143,715	456,615,428	16,941,750,000
1932			
Jan.	12,156,282	36,850,171	1,112,370,000
Feb.	12,518,243	39,472,356	1,071,840,000
Mar.	11,292,363	36,202,474	1,236,942,000
Apr.	11,083,556	35,416,482	1,270,080,000
May	12,044,956	37,681,119	1,326,738,000
June	17,480,486	57,358,548	1,627,920,000
July	11,706,987	38,406,905	1,315,020,000
Aug.	10,115,830	32,984,219	1,478,694,000

Rubber Manufacturers Association, Inc., figures representing 80% of the industry since January, 1929, with the exception of gasoline consumption.

Rubber Goods Production Statistics

	1932								1931
TIRES AND TUBES	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Aug.
Pneumatic casings									
Production ..... *thousands*	2,770	3,097	2,937	2,813	3,056	4,515	2,893	....	3,125
Shipments, total ..... *thousands*	2,602	2,042	2,363	2,958	3,406	8,293	1,923	....	3,968
Domestic ..... *thousands*	2,545	1,973	2,281	2,886	3,325	8,212	1,845	....	3,845
Stocks, end of month.... *thousands*	6,329	7,338	7,902	7,877	7,503	3,700	4,962	....	7,117
Solid and cushion tires									
Production ..... *thousands*	9	10	9	8	8	11	10	....	12
Shipments, total ..... *thousands*	9	10	9	8	8	22	7	....	16
Domestic ..... *thousands*	9	9	9	8	8	22	7	....	15
Stocks, end of month.... *thousands*	37	37	37	36	35	23	25	....	51
Inner tubes									
Production ..... *thousands*	2,719	3,057	2,802	2,580	2,727	4,223	2,350	....	3,548
Shipments, total ..... *thousands*	2,803	2,182	2,149	2,708	3,094	7,394	1,728	....	4,240
Domestic ..... *thousands*	2,761	2,135	2,094	2,658	3,035	7,336	1,674	....	4,158
Stocks, end of month.... *thousands*	6,175	7,008	7,008	7,553	7,131	3,943	4,780	....	7,019
Raw material consumed									
Fabrics ..... *thous. of lbs.*	12,156	12,518	11,292	11,084	12,045	17,480	11,707	....	11,745
MISCELLANEOUS PRODUCTS									
Rubber bands, shipments *thous. of lbs.*	206	208	223	202	187	180	160	199	195
Rubber clothing, calendered									
Orders, net..*no. coats and sundries*	20,720	12,388	13,970	7,303	12,503	10,433	9,109	13,321	21,580
Production ..*no. coats and sundries*	10,130	20,405	17,649	9,711	12,886	15,333	26,849	28,284	27,080
Rubber-proofed fabrics, production,									
total ..... *thous. of yds.*	2,184	2,448	2,462	2,092	1,748	2,243	....	....	3,787
Auto fabrics ..... *thous. of yds.*	339	233	312	202	197	308	224	....	596
Raincoat fabrics..... *thous. of yds.*	853	883	754	701	556	744	....	....	2,226
Rubber flooring, shipments *thous. of sq. ft.*	358	376	422	546	399	546	329	....	595
Rubber and canvas footwear									
Production, total.... *thous. of pairs*	3,557	3,777	3,787	4,104	4,518	4,429	2,321	3,576	3,382
Tennis ..... *thous. of pairs*	2,496	3,226	3,187	3,446	3,485	2,898	1,197	1,375	1,021
Waterproof ..... *thous. of pairs*	1,061	552	600	657	1,033	1,531	1,124	2,201	2,361
Shipments, total.... *thous. of pairs*	3,990	4,454	4,998	5,073	5,049	4,345	2,985	3,342	4,245
Tennis ..... *thous. of pairs*	2,374	3,411	4,264	4,374	4,603	3,839	1,778	1,208	1,252
Waterproof ..... *thous. of pairs*	1,616	1,043	735	698	446	506	1,206	2,134	2,993
Shipments, domestic, total *thous. of pairs*	3,962	4,416	4,943	5,010	4,966	4,285	2,942	3,272	4,065
Tennis ..... *thous. of pairs*	2,353	3,378	4,216	4,333	4,530	3,786	1,755	1,175	1,223
Waterproof ..... *thous. of pairs*	1,610	1,038	727	677	436	499	1,187	2,096	2,842
Stocks, total, end of month, *thous. of pairs*	20,237	19,551	19,347	18,381	17,879	17,962	17,317	17,358	22,070
Tennis ..... *thous. of pairs*	8,510	8,264	8,191	7,267	6,163	5,222	4,641	4,615	5,704
Waterproof ..... *thous. of pairs*	11,726	11,287	11,156	11,115	11,716	12,741	12,676	12,743	16,366
Rubber heels									
Production ..... *thous. of pairs*	12,316	14,787	16,368	11,737	10,259	11,299	9,868	....	16,293
Shipments									
Export ..... *thous. of pairs*	290	259	305	280	275	266	261	....	514
Repair trade ..... *thous. of pairs*	3,431	4,575	3,785	2,656	3,651	3,708	2,449	....	5,355
Shoe manufacturers *thous. of pairs*	8,704	8,748	9,424	6,938	6,345	8,330	7,432	....	11,653
Stocks, end of month *thous. of pairs*	24,515	25,807	27,933	28,340	28,782	27,736	27,397	....	25,832
Rubber soles									
Production ..... *thous. of pairs*	3,411	3,461	3,953	2,292	2,488	2,461	2,419	....	2,933
Shipments									
Export ..... *thous. of pairs*	8	3	2	1	4	5	14	....	67
Repair trade ..... *thous. of pairs*	264	285	252	252	151	133	113	....	234
Shoe manufacturers *thous. of pairs*	2,954	2,925	3,320	2,087	2,549	2,362	2,280	....	2,790
Stocks, end of month *thous. of pairs*	2,085	2,428	2,691	2,759	2,434	2,374	2,308	....	2,395
Mechanical rubber goods, shipments									
Total ..... *thous. of dollars*	2,463	2,446	2,638	2,613	2,542	2,672	2,024	....	3,356
Belting ..... *thous. of dollars*	483	483	491	430	420	526	524	....	802
Hose ..... *thous. of dollars*	903	966	1,174	1,251	1,131	1,095	734	....	1,161
Other ..... *thous. of dollars*	1,077	997	973	932	991	1,051	766	....	1,393

Source: *Survey of Current Business*, Bureau of Foreign and Domestic Commerce, Washington, D. C.

Plantation Rubber Crop Returns by Months

Summary of 615 Producing Companies

	Br. N. Borneo (26 Companies)		Ceylon (102 Companies)		India and Burma (21 Companies)		Malaya (338 Companies)		Netherlands East Indies—Java (60 Companies)		Netherlands East Indies—Sumatra (60 Companies)		Miscellaneous (8 Companies)		Total (615 Companies)	
1932	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index
January	352	72.0	1,378	67.5	208	37.0	14,409	115.9	2,791	106.3	4,712	116.9	212	117.1	24,062	107.0
February	336	68.7	738	36.2	82	14.6	11,854	95.3	2,793	106.4	3,894	96.6	120	66.3	19,817	88.6
March	365	74.6	1,187	58.2	152	27.0	11,355	91.3	3,071	116.9	4,210	104.4	143	79.0	20,483	91.6
April	318	65.0	1,209	59.2	149	26.5	11,991	96.4	2,762	105.2	4,046	100.3	163	90.1	20,638	92.3
May	277	56.6	897	43.9	99	17.6	12,711	102.2	2,541	96.8	4,364	108.2	171	94.5	21,060	94.2
June	298	60.9	1,196	58.6	36	6.4	12,353	99.3	2,323	88.5	4,263	105.7	167	92.3	20,636	92.3
July	298	60.9	1,213	59.4	23	4.1	13,056	105.0	2,257	85.9	4,175	103.5	129	71.3	21,151	94.6
August	305	62.4	1,034	50.7	19	3.4	12,845	103.3	1,776	67.6	4,082	101.2	125	69.1	20,186	90.3
Eight months ending August,																
1932	2,549	....	8,852	....	768	....	100,574	....	20,314	....	33,746	....	1,230	....	168,033	....
1931	3,219	....	10,277	....	2,954	....	96,181	....	23,555	....	33,281	....	1,582	....	171,049	....

NOTE. Index figures throughout are based on the monthly average for 1929=100. Issued September 23, 1932, by the Commercial Research Department, The Rubber Growers' Association, Inc., London, England.

Classified Advertisements

CONTINUED

MACHINERY AND SUPPLIES FOR SALE

FOR SALE: 3 VACUUM EXPANDERS, SIZES 18-19-20-21-22-23 inclusive, complete with Pennsylvania pump, size 14 x 5" with tank and 3" Swartwout water separator. Address Box No. 121, care of INDIA RUBBER WORLD.

FOR SALE: ONE BANNER BIAS CUTTER, COMPLETE WITH 2 skids, motors, and controls, latest model, used only 3 months. Address Box No. 122, care of INDIA RUBBER WORLD.

FOR SALE: 2 SETS OF MOLDS, LATE DESIGN, ALL POPULAR high pressure and balloon sizes, 3 pair curing rings with each mold. Address Box No. 123, care of INDIA RUBBER WORLD.

FOR SALE: ONE GARDNER 10 BY 5 BY 10 BELT DRIVEN 2-stage air compressor with 50 h.p. Allis-Chalmers motor and large air tank; one Adamson hydraulic accumulator; one 66" Thropp calender without drive; 6, 20 by 22 by 60" Thropp mills with or without motor and reduction gear, will be sold separate or as a unit; one 12 by 12 by 14 National pump; and one 12 by 7 by 10 pulling pump. Address Box No. 124, care of INDIA RUBBER WORLD.

MACHINERY AND SUPPLIES WANTED

WANTED: ONE BANBURY MIXER; 2 LARGE FARREL MILLS; 2 sole cutting machines. Second-hand but in excellent condition. Offers and particulars to P. M. Rowde, Consul General, Oslo, Norway.

WANTED TO PURCHASE: ONE BALL OR TOY FORMING machine, Dutchess Tool Co. make. State price, how long used, general condition, and location. Address Box No. 126, care of INDIA RUBBER WORLD.

United States Statistics

Imports of Crude and Manufactured Rubber

	July, 1931		July, 1932	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	97,370,808	$6,023,748	72,365,280	$2,102,915
Liquid latex	1,304,839	104,868	488,483	37,327
Jelutong or pontianak	741,852	64,493	832,377	52,116
Balata	150,857	20,777	58,049	7,934
Gutta percha	2,134	2,890	547	753
Siak, scrap, and reclaimed	601,970	4,790	275,556	6,657
Totals	100,172,460	$6,221,566	74,020,292	$2,207,702
Chicle, crude *Free*	175,358	$84,799	187,593	$88,462
MANUFACTURED—*Dutiable*				
Tires *number*	1,880	$9,397	549	$7,522
Other rubber manufactures	.....	71,571	.....	18,194
Totals	.....	$80,968	.....	$25,716

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber	3,492,043	$241,810	4,547,680	$179,699
Balata	11,310	2,300	13,305	2,422
Guayule	1,100	137	4,500	540
Gutta percha, rubber substitutes, and scrap	.....	.....	24,620	1,717
Rubber manufactures	.....	2,066	.....	1,648
Totals	.....	$246,313	.....	$186,026

Exports of Domestic Merchandise

RUBBER AND MANUFACTURES				
Reclaimed	928,780	$40,610	538,079	$19,715
Scrap and old	5,115,503	98,648	2,827,214	45,658
Rubberized automobile cloth, *sq. yd.*	83,136	35,253	45,286	20,166
Other rubberized piece goods and hospital sheeting, *sq. yd.*	105,141	38,800	51,071	18,445
Footwear				
Boots *pairs*	81,928	190,417	4,827	8,659
Shoes *pairs*	58,175	49,133	15,600	9,681
Canvas shoes with rubber soles *pairs*	73,269	48,109	19,137	10,588
Soles *doz. pairs*	5,800	15,132	1,748	3,667
Heels *doz. pairs*	58,443	35,188	23,083	13,131
Water bottles and fountain syringes *number*	29,446	13,078	36,975	11,763
Gloves *doz. pairs*	7,289	17,665	3,719	8,897
Other druggists' sundries	.....	25,578	.....	18,231
Balloons *gross*	51,731	47,833	15,208	13,152
Toys and balls	.....	11,506	.....	1,803
Bathing caps *doz.*	4,514	8,048	2,446	4,485
Bands	34,097	10,765	22,357	6,850
Erasers	34,029	20,411	13,487	7,844
Hard rubber goods				
Electrical goods	33,779	4,097	82,783	6,082
Other goods	.....	22,013	.....	8,849
Tires				
Truck and bus casings, *number*	29,589	525,577	16,835	258,727
Other automobile casings, *number*	119,001	934,621	64,106	414,817
Tubes, auto *number*	113,251	145,784	54,394	53,499
Other casings and tubes, *number*	5,490	11,690	2,899	5,183
Solid tires for automobiles and motor trucks *number*	1,133	34,337	579	14,108
Other solid tires	118,308	16,151	73,259	9,709
Tire sundries and repair materials	.....	79,543	.....	47,300
Rubber and friction tape	103,093	26,764	42,390	9,483
Belting	342,609	141,227	104,935	45,532
Hose	467,585	136,983	200,026	50,666
Packing	100,786	43,480	68,198	25,973
Thread	74,278	47,009	91,058	50,000
Other rubber manufactures	.....	111,978	.....	68,512
Totals	.....	$2,987,428	.....	$1,291,175

World Rubber Shipments—Net Exports

	Long Tons—1932					
British Malaya	Apr.	May	June	July	Aug.	Sept.
Gross exports	36,670	40,297	36,566	40,723	39,337	41,973
Imports	4,682	5,677	5,665	5,346	7,371	8,869
Net	31,988	34,620	30,901	35,377	31,966	33,104
Ceylon	3,210	3,824	3,444	3,501	4,717	4,361
India and Burma	365	304	359	99	129	.....
Sarawak	459	595	481	442	506	614
British No. Borneo	420	420	420	*420	*420	*420
Siam	130	118	166	184	300	410
Java and Madura	6,722	6,552	5,610	5,779	4,803	.....
Sumatra E. Coast	6,090	6,551	7,516	6,257	4,882	.....
Other N. E. Indies	4,935	6,012	5,507	6,145	7,244	.....
French Indo-China	962	964	1,218	1,233	*1,164	.....
Amazon Valley	487	416	394	232	303	.....
Other America	10	.....	14	.....	.....	.....
Guayule	.....	.....	.....	.....	.....	.....
Africa	89	278	125	141	120	.....
Totals	55,867	60,654	56,155	59,810	56,554	.....

* Estimate. *Compiled by Rubber Division, Washington, D. C.*

Dominion of Canada Statistics

Imports of Crude and Manufactured Rubber

	June, 1932		Three Months Ended June, 1932	
UNMANUFACTURED	Pounds	Value	Pounds	Value
Rubber, gutta percha, etc.	6,349,034	$218,293	13,104,410	$502,306
Rubber, recovered	458,000	18,423	1,220,500	50,299
Rubber and gutta percha scrap	63,900	2,000	456,600	6,268
Balata	3,694	1,121	5,765	1,421
Rubber substitute	24,400	4,098	60,600	9,686
Totals	6,899,028	$243,935	14,847,875	$569,980
PARTLY MANUFACTURED				
Hard rubber sheets and rods	805	$565	2,913	$2,144
Hard rubber tubes	.....	42	.....	49
Rubber thread not covered	12,324	9,199	47,442	36,680
Totals	13,129	$9,806	50,355	$38,873
MANUFACTURED				
Belting	.....	$3,055	.....	$13,857
Hose	.....	4,040	.....	12,321
Packing	.....	2,944	.....	9,500
Boots and shoes *pairs*	1,837	1,889	26,652	7,050
Clothing including waterproofed	.....	676	.....	2,377
Raincoats *number*	586	2,430	3,793	11,509
Gloves	.....	338	.....	1,151
Hot water bottles	.....	828	.....	5,394
Tires, bicycle *number*	4,697	2,240	17,390	8,481
Pneumatic *number*	3,606	8,680	5,526	28,004
Inner tubes *number*	83	277	201	700
Solid for automobiles and motor trucks *number*	29	1,688	103	4,943
Other solid tires	.....	2,073	.....	3,765
Mats and matting	.....	10,772	.....	17,960
Cement	.....	6,381	.....	16,073
Golf balls *dozen*	8,807	26,017	20,804	61,622
Heels *pairs*	9,073	1,335	47,782	3,508
Other rubber manufactures	.....	72,277	.....	199,154
Totals	.....	$147,940	.....	$407,369
Totals, rubber imports	.....	$401,681	.....	$1,016,222

Exports of Domestic and Foreign Rubber Goods

	Produce of Canada Value	Reexports of Foreign Goods Value	Produce of Canada Value	Reexports of Foreign Goods Value
UNMANUFACTURED				
Waste rubber	$2,658	.....	$5,841	.....
MANUFACTURED				
Belting	$20,365	.....	$47,230	.....
Canvas shoes with rubber soles	39,890	.....	140,579	.....
Boots and shoes	110,766	.....	217,333	.....
Clothing, including waterproofed	7,172	.....	16,479	.....
Heels	12,805	.....	37,178	.....
Hose	3,184	.....	9,317	.....
Soles	6,293	.....	12,860	.....
Tires, bicycle	6	.....	35	.....
Pneumatic	280,227	.....	833,985	.....
Inner tubes	23,212	.....	61,107	.....
Solid	.....	.....	100	.....
Other rubber manufactures	32,785	$880	99,392	$113,294
Totals	$536,705	$880	$1,475,595	$113,294
Totals, rubber exports	$539,363	$880	$1,481,436	$113,294

London Stocks, August, 1932

			Stocks, August 31		
LONDON	Landed Tons	Delivered Tons	1932 Tons	1931 Tons	1930 Tons
Plantation	2,717	4,505	47,010	81,474	80,839
Other grades	80	55	69	54	47
LIVERPOOL					
Plantation	*1,449	*1,456	*57,236	*55,428	*29,670
Total tons, London and Liverpool	4,246	6,016	104,315	136,956	110,556

*Official returns from the recognized public warehouses.

Low and High New York Spot Prices in Cents per Pound

	October		
PLANTATIONS	1932*	1931	1930
Thin latex crepe	3 7/8/4 1/4	4 7/8/5 9/16	7 5/8/9 3/8
Smoked sheet, ribbed	3 1/16/3 1/8	4 1/2/5 3/8	7 3/8/9
PARAS			
Upriver fine	7 1/4/7 3/4	6	12 1/4
Upper caucho ball	‡‡3	...	7 1/4

* Figured to October 26, 1932. † Nominal. ‡ No stocks.